

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 30.03.96  
 Test oil : ISO 4113  
 Combination No. : 9 400 083 449  
 Injection pump  
 Pump designation : PES6A100D320/3RS2691  
 EP type number : 9 410 230 025  
 Governor  
 Governor design. : RSV400...1100A2C2209  
 : R  
 Governor no. : 9 420 083 201  
 Cust. part No. : 3352891

Customer-spec. information  
 Customer : CUMMINS  
 Motor : 6 CT 8.3 L

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
 Test oil inlet  
 temp. °C : 40  
 Tolerance °C : ± 2.0  
 Overflow valve : 1 419 992 198  
 Inlet press. bar : 1.5  
 Test nozzle holde  
 assembly : 0 681 343 009  
 Opening pressure  
 bar : 173.5  
 Tolerance bar : ± 1.5  
 Test lines : 1 680 750 014  
 Outside diameter : 6.0

A01

x inside diameter : 2.0  
 x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
 Tolerance bar : ± 1.0

Prestroke mm : 2.85  
 Tolerance mm : ± 0.05  
 Check  
 tolerance mm : ± 0.10

Rack travel in mm : 10.50  
 Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
 : 4

Phasing : 0-60-120-180-240  
 : -300

## Beginning of delivery difference

and maximum rack  
 travel : 10.50  
 Tolerance mm : ± 1.50  
 Difference ° CS : 3.50

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.15  
 Tolerance mm : ± 0.05

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 88.0

Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
 cm<sup>3</sup>/1000S. : ± 3.0

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Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

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Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

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##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 2.50

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##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 88.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

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##### CONTROL LEVER

control lever  
position degree : 89.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 9.10  
Rated speed rpm : 1145  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1185  
Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1300

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##### LOW IDLE

control lever  
position degree : 67.0  
tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 450  
rack travel mm : 4.60

##### Testing:

Rated speed rpm : 450  
rack travel mm : 5.10  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 600  
Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.00

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##### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 10.15  
Tolerance mm : ± 0.05

Rated speed rpm : 550  
rack travel mm : 10.20  
Tolerance mm : ± 0.10

Rated speed rpm : 400  
rack travel mm : 10.75



Tolerance mm :  $\pm$  0.25

End of test specification sheet

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#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 74.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

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#### BREAKAWAY

Rack travel in mm : 9.10  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

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#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 142.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

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#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.03.96  
Test oil : ISO 4113  
Combination No. : 9 400 083 449AB  
Injection pump  
Pump designation : PES6A100D320/3RS2691  
EP type number : 9 410 230 025  
Governor  
Governor design. : RSV400...1100A2C2209  
: R  
Governor no. : 9 420 083 201  
Cust. part No. : 3352892-VERSA001

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 CT 8.3  
Power KW : 125.1

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

A04

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery difference

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 3.50

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 10.65  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 92.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

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Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

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Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.5

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

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##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : +- 0.20

governor spring  
pre-tension  
click setting x : 2.50

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##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 92.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

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##### CONTROL LEVER

control lever  
position degree : 86.0  
tolerance degree : +- 4.0

##### RATED SPEED

rack travel mm : 9.60  
Rated speed rpm : 1045  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1085  
Tolerance 1/min : +- 15

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1250

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##### LOW IDLE

control lever  
position degree : 67.0  
tolerance degree : +- 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 450  
rack travel mm : 4.60

##### Testing:

Rated speed rpm : 450  
rack travel mm : 5.10  
Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 600  
Tolerance 1/min : +- 30

Rated speed rpm : 100

CRT mm min. : > 19.00

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##### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 10.65  
Tolerance mm : +- 0.05

Rated speed rpm : 500  
rack travel mm : 11.85  
Tolerance mm : +- 0.05

Rated speed rpm : 700  
rack travel mm : 11.45

Tolerance mm :  $\pm$  0.05  
Rated speed rpm : 850  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.10

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#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 97.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 103.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

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#### BREAKAWAY

Rack travel in mm : 9.60  
Rated speed rpm : 1045  
Tolerance 1/min :  $\pm$  5

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#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 142.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

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#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.03.96  
Test oil : ISO 4113  
Combination No. : 9 400 083 449AC  
Injection pump  
Pump designation : PES6A100D320/3RS2691  
EP type number : 9 410 230 025  
Governor  
Governor design. : RSV400...1100A2C2209  
: R  
Governor no. : 9 420 083 201  
Cust. part No. : 3352893-VERSA002

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 CT 8.3 L  
Power KW : 134.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

A07

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300

Beginning of delivery difference  
and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 3.50

## BASIC SETTING

Rated speed rpm : 1100  
Rack travel in mm : 10.25  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 88.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 3.0

Spreed	
Tolerance	
cm3/1000 strokes :	3.5

Check tolerance	
cm3/1000S. :	8.0

Del. quantity	
cm3/1000 strokes :	16.0
Tolerance	
cm3/1000 strokes : +	2.0
Check tolerance	
cm3/1000S. : +	4.5

Spreed	
Tolerance	
cm3/1000 strokes :	5.5
Check tolerance	
cm3/1000S. :	9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm :	800
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Rack travel in mm :	0.65
Tolerance mm : +	0.35

governor spring	
pre-tension	
click setting x :	2.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1100
Aneroid pressure	
hPa :	-
Del. quantity	
cm3/1000 strokes :	88.5
Tolerance	
cm3/1000 strokes : +	1.0
Check tolerance	
cm3/1000S. : +	3.0
Spreed	
Tolerance	
cm3/1000 strokes :	3.5
Check tolerance	
cm3/1000S. :	8.0

##### CONTROL LEVER

control lever	
position degree :	89.0
tolerance degree : +	4.0

##### RATED SPEED

rack travel mm :	9.20
Rated speed rpm :	1145
Tolerance 1/min : +	5

rack travel mm :	4.00
Rated speed rpm :	1185
Tolerance 1/min : +	15

rack travel mm :	0.85
Tolerance mm : +	0.55
Rated speed rpm :	1350

##### LOW IDLE

control lever	
position degree :	66.0
tolerance degree : +	4.0

##### Setting point w/out bumper spring

Rated speed rpm :	400
rack travel mm :	5.10

##### Testing:

Rated speed rpm :	400
rack travel mm :	5.60
Tolerance mm : +	0.10

rack travel mm :	2.00
Rated speed rpm :	595
Tolerance 1/min : +	30

Rated speed rpm :	100
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CRT mm min. :	> 19.00
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##### TORQUE CONTROL

Rated speed rpm :	1100
rack travel mm :	10.25
Tolerance mm : +	0.05

Rated speed rpm :	500
rack travel mm :	12.20
Tolerance mm : +	0.10

Rated speed rpm :	750
rack travel mm :	12.20

Tolerance mm :  $\pm$  0.10  
Rated speed rpm : 950  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.10

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#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 103.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 116.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

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#### BREAKAWAY

Rack travel in mm : 9.20  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

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#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 142.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

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#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.03.96  
Test oil : ISO 4113  
Combination No. : 9 400 083 449AG  
Injection pump  
Pump designation : PES6A100D320/3RS2691  
EP type number : 9 410 230 025  
Governor  
Governor design. : RSV400...1100A2C2209  
: R  
Governor no. : 9 420 083 201  
Cust. part No. : 3353251-VERSA006

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 CT 8.3  
Power KW : 133.2

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

A10

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery differende

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 3.50

## BASIC SETTING

Rated speed rpm : 1000  
Rack travel in mm : 10.85  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 97.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0



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Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

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Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

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GUIDE SLEEVE POSITION

Rated speed rpm : 800  
Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 2.50

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FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 97.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

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CONTROL LEVER

control lever  
position degree : 86.0  
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 9.80  
Rated speed rpm : 1045  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1085  
Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1250

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LOW IDLE

control lever  
position degree : 66.0  
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 5.10

Testing:

Rated speed rpm : 400  
rack travel mm : 5.60  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 595  
Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.00

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TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 10.85  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
rack travel mm : 11.50  
Tolerance mm : ± 0.10

Rated speed rpm : 700  
rack travel mm : 11.50

Tolerance mm :  $\pm$  0.10  
Rated speed rpm : 835  
rack travel mm : 11.10  
Tolerance mm :  $\pm$  0.10

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#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 96.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

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#### BREAKAWAY

Rack travel in mm : 9.80  
Rated speed rpm : 1045  
Tolerance 1/min :  $\pm$  5

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#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 142.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

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#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.03.96  
Test oil : ISO 4113  
Combination No. : 9 400 083 449AI

Injection pump  
Pump designation : PES6A100D320/3RS2691  
EP type number : 9 410 230 025

Governor  
Governor design. : RSV400...1100A2C2209  
: R  
Governor no. : 9 420 083 201

Cust. part No. : 3352894-VERSA008

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 CT 8.3  
Power KW : 139.8

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Beginning of delivery difference

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 3.50

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 106.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 2.50

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 106.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

##### CONTROL LEVER

control lever  
position degree : 94.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 10.30  
Rated speed rpm : 1295  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1340  
Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1500

---

##### LOW IDLE

control lever  
position degree : 66.0  
tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 5.10

##### Testing:

Rated speed rpm : 400  
rack travel mm : 5.60  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 570  
Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.00

---

##### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 11.35  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
rack travel mm : 11.40  
Tolerance mm : ± 0.10

Rated speed rpm : 400  
rack travel mm : 11.95

Tolerance mm :  $\pm$  0.25

---

#### BREAKAWAY

Rack travel in mm : 10.30  
Rated speed rpm : 1295  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 142.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.03.96  
Test oil : ISO 4113  
Combination No. : 9 400 083 449BB  
Injection pump  
Pump designation : PES6A100D320/3RS2691  
EP type number : 9 410 230 025  
Governor  
Governor design. : RSV400...1100A2C2209  
: R  
Governor no. : 9 420 083 201  
Cust. part No. : 3352898-VERSA011

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 CT 8.3 L  
Power KW : 179.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

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x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300

Beginning of delivery differende  
and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 3.50

## BASIC SETTING

Rated speed rpm : 1100  
Rack travel in mm : 12.05  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 117.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

Spreed  
Tolerance  
cm3/1000 strokes : 3.5

---

Check tolerance  
cm3/1000S. : 6.0

Del. quantity  
cm3/1000 strokes : 16.0  
Tolerance  
cm3/1000 strokes : + 2.0

Check tolerance  
cm3/1000S. : + 4.5

Spreed  
Tolerance  
cm3/1000 strokes : 3.5  
Check tolerance  
cm3/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

governor spring  
pre-tension  
click setting x : 2.50

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : -  
Del. quantity  
cm3/1000 strokes : 117.5  
Tolerance  
cm3/1000 strokes : + 1.0  
Check tolerance  
cm3/1000S. : + 3.0  
Spreed  
Tolerance  
cm3/1000 strokes : 3.5  
Check tolerance  
cm3/1000S. : 6.0

---

##### CONTROL LEVER

control lever  
position degree : 90.0  
tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 11.00  
Rated speed rpm : 1145  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1195  
Tolerance 1/min : + 15

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 1350

---

##### LOW IDLE

control lever  
position degree : 66.0  
tolerance degree : + 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 5.10

##### Testing:

Rated speed rpm : 400  
rack travel mm : 5.60  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 595  
Tolerance 1/min : + 30

Rated speed rpm : 100

CRT mm min. : > 19.00

---

##### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.05  
Tolerance mm : + 0.05

Rated speed rpm : 500  
rack travel mm : 12.60  
Tolerance mm : + 0.10

Rated speed rpm : 700  
rack travel mm : 12.60

Tolerance mm :  $\pm$  0.10  
Rated speed rpm : 800  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 113.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 126.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 11.00  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 142.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.03.96  
Test oil : ISO 4113  
Combination No. : 9 400 083 449BC  
Injection pump  
Pump designation : PES6A100b320/3RS2691  
EP type number : 9 410 230 025  
Governor  
Governor design. : RSV400...1100A2C2209  
: R  
Governor no. : 9 420 083 201  
Cust. part No. : 3353232-VERSA012

Customer spec. information  
Customer : CUMMINS  
Motor : 6 CT 8.3  
Power KW : 154.6

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300

Beginning of delivery difference  
and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 3.50

## BASIC SETTING

Rated speed rpm : 1100  
Rack travel in mm : 12.25  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 118.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 3.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800  
Rack travel in mm : 0.50  
Tolerance mm : ± 0.20  
governor spring  
pre-tension  
click setting x : 2.50

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 118.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

##### CONTROL LEVER

control lever  
position degree : 90.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 11.20  
Rated speed rpm : 1145  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1200  
Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1350

---

##### LOW IDLE

control lever  
position degree : 67.0  
tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 450  
rack travel mm : 4.60

##### Testing:

Rated speed rpm : 450  
rack travel mm : 5.10  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 600  
Tolerance 1/min : ± 30

Rated speed rpm : 100  
CRT mm min. : > 19.00

---

##### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.25  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
rack travel mm : 12.30  
Tolerance mm : ± 0.10

Rated speed rpm : 400  
rack travel mm : 12.85

Tolerance mm :  $\pm$  0.25

---

#### BREAKAWAY

Rack travel in mm : 11.20  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 142.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.03.96  
Test oil : ISO 4113  
Combination No. : 9 400 083 449BD  
Injection pump  
Pump designation : PES6A100D320/3RS2691  
EP type number : 9 410 230 025  
Governor  
Governor design. : RSV400...1100A2C2209  
: R  
Governor no. : 9 420 083 201  
Cust. part No. : 3354419-VERSA013

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 CT 8.3 l  
Power KW : 155.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

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x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery differende

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 3.50

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.35  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 107.0

Tolerance  
cm3/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : ± 3.0

Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 3.5

Check tolerance	
cm <sup>3</sup> /1000S.	: 8.0

Del. quantity	
cm <sup>3</sup> /1000 strokes	: 16.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 2.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.5

Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.5
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20

governor spring	
pre-tension	
click setting x	: 2.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
Aneroid pressure	
hPa	: -
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 107.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 3.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 3.5
Check tolerance	
cm <sup>3</sup> /1000S.	: 8.0

##### CONTROL LEVER

control lever	
position degree	: 89.0
tolerance degree	: ± 4.0

##### RATED SPEED

rack travel mm	: 10.30
Rated speed rpm	: 1145
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1190
Tolerance 1/min	: ± 15

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1350

##### LOW IDLE

control lever	
position degree	: 66.0
tolerance degree	: ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm	: 400
rack travel mm	: 5.10

##### Testing:

Rated speed rpm	: 400
rack travel mm	: 5.60
Tolerance mm	: ± 0.10

rack travel mm	: 2.00
Rated speed rpm	: 595
Tolerance 1/min	: ± 30

Rated speed rpm	: 100
-----------------	-------

CRT mm min.	: > 19.00
-------------	-----------

##### TORQUE CONTROL

Rated speed rpm	: 1100
rack travel mm	: 11.35
Tolerance mm	: ± 0.05

Rated speed rpm	: 700
rack travel mm	: 12.90
Tolerance mm	: ± 0.10

Rated speed rpm	: 900
rack travel mm	: 12.20

Tolerance mm :  $\pm$  0.10

End of test specification sheet

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 10.30  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 142.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.03.96  
Test oil : ISO 4113  
Combination No. : 9 400 083 449CA  
Injection pump  
Pump designation : PES6A100D320/3RS2691  
EP type number : 9 410 230 025  
Governor  
Governor design. : RSV400...1100A2C2209  
: R  
Governor no. : 9 420 083 201  
Cust. part No. : 3915294-VERSA020

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 CTA 8.3 L  
Power KW : 164.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery differende

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 3.50

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.55  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 111.0

Tolerance  
cm3/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : ± 3.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800  
Rack travel in mm : 0.65  
Tolerance mm : ± 0.35

governor spring  
pre-tension  
click setting x : 2.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 111.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

##### CONTROL LEVER

control lever  
position degree : 89.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 10.50  
Rated speed rpm : 1145  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1195  
Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1350

##### LOW IDLE

control lever  
position degree : 66.0  
tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 5.10

##### Testing:

Rated speed rpm : 400  
rack travel mm : 5.60  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 595  
Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 11.55  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
rack travel mm : 12.20  
Tolerance mm : ± 0.10

Rated speed rpm : 750  
rack travel mm : 12.20



Tolerance mm :  $\pm$  0.10  
Rated speed rpm : 950  
rack travel mm : 11.90  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 104.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 10.50  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 142.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.03.96  
Test oil : ISO 4113  
Combination No. : 9 400 083 449CI  
Injection pump  
Pump designation : PES6A100D320/3RS2691  
EP type number : 9 410 230 025  
Governor  
Governor design. : RSV400...1100A2C2209  
: R  
Governor no. : 9 420 083 201  
Cust. part No. : 3354421-VERSA028

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 CT 8.3  
Power KW : 154.6

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

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x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery differende

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 3.50

## BASIC SETTING

Rated speed rpm : 1100  
Rack travel in mm : 11.95  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 116.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spreed	
Tolerance	
cm3/1000 strokes :	3.5
Check tolerance	
cm3/1000S. :	8.0
Del. quantity	
cm3/1000 strokes :	16.0
Tolerance	
cm3/1000 strokes :	+ 2.0
Check tolerance	
cm3/1000S. :	+ 4.5
Spreed	
Tolerance	
cm3/1000 strokes :	5.5
Check tolerance	
cm3/1000S. :	9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm :	800
Rack travel in mm :	0.50
Tolerance mm :	+ 0.20
governor spring	
pre-tension	
click setting x :	2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1100
Aneroid pressure	
hPa :	-
Del. quantity	
cm3/1000 strokes :	116.0
Tolerance	
cm3/1000 strokes :	+ 1.0
Check tolerance	
cm3/1000S. :	+ 3.0
Spreed	
Tolerance	
cm3/1000 strokes :	3.5
Check tolerance	
cm3/1000S. :	8.0

CONTROL LEVER

control lever	
position degree :	89.0
tolerance degree :	+ 4.0

RATED SPEED

rack travel mm :	10.90
Rated speed rpm :	1145
Tolerance 1/min :	+ 5

rack travel mm :	4.00
Rated speed rpm :	1195
Tolerance 1/min :	+ 15

rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	1350

LOW IDLE

control lever	
position degree :	66.0
tolerance degree :	+ 4.0

Setting point w/out bumper spring

Rated speed rpm :	400
rack travel mm :	5.10

Testing:

Rated speed rpm :	400
rack travel mm :	5.60
Tolerance mm :	+ 0.10

rack travel mm :	2.00
Rated speed rpm :	570
Tolerance 1/min :	+ 30

Rated speed rpm :	100
-------------------	-----

CRT mm min. :	> 19.00
---------------	---------

TORQUE CONTROL

Rated speed rpm :	1100
rack travel mm :	11.95
Tolerance mm :	+ 0.05

Rated speed rpm :	500
rack travel mm :	12.00
Tolerance mm :	+ 0.10

Rated speed rpm :	400
rack travel mm :	12.55

Tolerance mm :  $\pm$  0.25

---

BREAKAWAY

Rack travel in mm : 10.90  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 142.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

---

LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.03.96  
Test oil : ISO 4113  
Combination No. : 9 400 083 449CJ  
Injection pump  
Pump designation : PES6A100D320/3RS2691  
EP type number : 9 410 230 025  
Governor  
Governor design. : RSV400...1100A2C2209  
: R  
Governor no. : 9 420 083 201  
Cust. part No. : 3354437-VERSA029

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 CT 8.3 L  
Power KW : 132.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

B03

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery difference

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 3.50

## BASIC SETTING

Rated speed rpm : 1250  
Rack travel in mm : 10.55  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 94.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 2.50

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 94.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

##### CONTROL LEVER

control lever  
position degree : 94.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 9.50  
Rated speed rpm : 1295  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1335  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1500

---

##### LOW IDLE

control lever  
position degree : 66.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 5.10

##### Testing:

Rated speed rpm : 400  
rack travel mm : 5.60  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 570  
Tolerance 1/min :  $\pm$  30

Rated speed rpm : 100

CRT mm min. : > 19.00

---

##### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 10.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 10.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400  
rack travel mm : 11.15

Tolerance mm :  $\pm$  0.25

---

BREAKAWAY

Rack travel in mm : 9.50  
Rated speed rpm : 1295  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 142.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  11.0

---

LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.03.96  
Test oil : ISO 4113  
Combination No. : 9 400 083 449DA  
Injection pump  
Pump designation : PES6A100D320/3RS2691  
EP type number : 9 410 230 025  
Governor  
Governor design. : RSV400...1100A2C2209  
: R  
Governor no. : 9 420 083 201  
Cust. part No. : 3354634-VERSA030

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 CT 8.3  
Power KW : 160.3

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

B06

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery difference

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 3.50

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.95  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 116.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0



Spreed	
Tolerance	
cm3/1000 strokes :	3.5
Check tolerance	
cm3/1000S. :	8.0
Del. quantity	
cm3/1000 strokes :	16.0
Tolerance	
cm3/1000 strokes :	+ 2.0
Check tolerance	
cm3/1000S. :	+ 4.5
Spreed	
Tolerance	
cm3/1000 strokes :	5.5
Check tolerance	
cm3/1000S. :	9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm :	800
Rack travel in mm :	0.50
Tolerance mm :	+ 0.20
governor spring	
pre-tension	
click setting x :	2.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1250
Aneroid pressure	
hPa :	-
Del. quantity	
cm3/1000 strokes :	116.0
Tolerance	
cm3/1000 strokes :	+ 1.0
Check tolerance	
cm3/1000S. :	+ 3.0
Spreed	
Tolerance	
cm3/1000 strokes :	3.5
Check tolerance	
cm3/1000S. :	8.0

##### CONTROL LEVER

control lever	
position degree :	94.0
tolerance degree :	+ 4.0

##### RATED SPEED

rack travel mm :	10.90
Rated speed rpm :	1295
Tolerance 1/min :	+ 5
rack travel mm :	4.00
Rated speed rpm :	1345
Tolerance 1/min :	+ 15
rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	1500

##### LOW IDLE

control lever	
position degree :	66.0
tolerance degree :	+ 4.0

##### Setting point w/out bumper spring

Rated speed rpm :	400
rack travel mm :	5.10

##### Testing:

Rated speed rpm :	400
rack travel mm :	5.60
Tolerance mm :	+ 0.10

rack travel mm :	2.00
Rated speed rpm :	570
Tolerance 1/min :	+ 30

Rated speed rpm :	100
-------------------	-----

CRT mm min. :	> 19.00
---------------	---------

##### TORQUE CONTROL

Rated speed rpm :	1250
rack travel mm :	11.95
Tolerance mm :	+ 0.05

Rated speed rpm :	500
rack travel mm :	12.00
Tolerance mm :	+ 0.10

Rated speed rpm :	400
rack travel mm :	12.55

Tolerance mm :  $\pm$  0.25

---

#### BREAKAWAY

Rack travel in mm : 10.90  
Rated speed rpm : 1295  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 142.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.03.96  
Test oil : ISO 4113  
Combination No. : 9 400 083 449DB  
Injection pump  
Pump designation : PES6A100D320/3RS2691  
EP type number : 9 410 230 025  
Governor  
Governor design. : RSV400...1100A2C2209  
: R  
Governor no. : 9 420 083 201  
Cust. part No. : 3354685-VERSA031

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 CT 8.3 L  
Power KW : 129.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery differende

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 3.50

## BASIC SETTING

Rated speed rpm : 1100  
Rack travel in mm : 10.25  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 88.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes :	3.5
Check tolerance	
cm <sup>3</sup> /1000S. :	8.0
Del. quantity	
cm <sup>3</sup> /1000 strokes :	16.0
Tolerance	
cm <sup>3</sup> /1000 strokes : + -	2.0
Check tolerance	
cm <sup>3</sup> /1000S. : + -	4.5
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes :	5.5
Check tolerance	
cm <sup>3</sup> /1000S. :	9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm :	800
Rack travel in mm :	0.50
Tolerance mm : + -	0.20
governor spring	
pre-tension	
click setting x :	2.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1100
Aneroid pressure	
hPa :	-
Del. quantity	
cm <sup>3</sup> /1000 strokes :	88.0
Tolerance	
cm <sup>3</sup> /1000 strokes : + -	1.0
Check tolerance	
cm <sup>3</sup> /1000S. : + -	3.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes :	3.5
Check tolerance	
cm <sup>3</sup> /1000S. :	8.0

##### CONTROL LEVER

control lever	
position degree :	89.0
tolerance degree : + -	4.0

##### RATED SPEED

rack travel mm :	9.20
Rated speed rpm :	1145
Tolerance 1/min : + -	5
rack travel mm :	4.00
Rated speed rpm :	1185
Tolerance 1/min : + -	15
rack travel mm :	0.85
Tolerance mm : + -	0.55
Rated speed rpm :	1350

##### LOW IDLE

control lever	
position degree :	66.0
tolerance degree : + -	4.0

##### Setting point w/out bumper spring

Rated speed rpm :	400
rack travel mm :	5.10

##### Testing:

Rated speed rpm :	400
rack travel mm :	5.60
Tolerance mm : + -	0.10

rack travel mm :	2.00
Rated speed rpm :	570
Tolerance 1/min : + -	30

Rated speed rpm :	100
-------------------	-----

CRT mm min. :	> 19.00
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##### TORQUE CONTROL

Rated speed rpm :	1100
rack travel mm :	10.25
Tolerance mm : + -	0.05

Rated speed rpm :	500
rack travel mm :	10.30
Tolerance mm : + -	0.10

Rated speed rpm :	400
rack travel mm :	10.85

Tolerance mm :  $\pm$  0.25

End of test specification sheet

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 72.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 9.20  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 142.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  11.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.03.96  
Test oil : ISO 4113  
Combination No. : 9 400 083 449DC  
Injection pump  
Pump designation : PES6A100D320/3RS2691  
EP type number : 9 410 230 025  
Governor  
Governor design. : RSV400...1100A2C2209  
: R  
Governor no. : 9 420 083 201  
Cust. part No. : 3354686-VERSA032

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 CTA - 8.3 l  
Power KW : 148.4

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300

Beginning of delivery differende

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 3.50

## BASIC SETTING

Rated speed rpm : 1100  
Rack travel in mm : 10.85  
Tolerance mm : ± 0.05  
Del. quantity  
cm3/1000 strokes : 97.5  
Tolerance  
cm3/1000 strokes : ± 1.0  
Check tolerance  
cm3/1000S. : ± 3.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 2.50

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 97.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

##### CONTROL LEVER

control lever  
position degree : 89.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 9.80  
Rated speed rpm : 1145  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1190  
Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1350

---

##### LOW IDLE

control lever  
position degree : 66.0  
tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 5.10

##### Testing:

Rated speed rpm : 400  
rack travel mm : 5.60  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 570  
Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.00

---

##### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 10.85  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
rack travel mm : 10.90  
Tolerance mm : ± 0.10

Rated speed rpm : 400  
rack travel mm : 11.45

Tolerance mm :  $\pm$  0.25

End of test specification sheet

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 9.80  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 142.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.03.96  
Test oil : ISO 4113  
Combination No. : 9 400 083 449DD

Injection pump  
Pump designation : PES6A100D320/3RS2691  
EP type number : 9 410 230 025

Governor  
Governor design. : RSV400...1100A2C2209  
: R  
Governor no. : 9 420 083 201

Cust. part No. : 3354913

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 CT 8.3 L  
Power KW : 129.1

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Beginning of delivery difference

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 3.50

## BASIC SETTING

Rated speed rpm : 1175

Rack travel in mm : 10.25  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 88.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 2.50

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1175  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 88.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

##### CONTROL LEVER

control lever  
position degree : 91.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 9.20  
Rated speed rpm : 1220  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1260  
Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1400

---

##### LOW IDLE

control lever  
position degree : 66.0  
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 5.10

##### Testing:

Rated speed rpm : 400  
rack travel mm : 5.60  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 595  
Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.00

---

##### TORQUE CONTROL

Rated speed rpm : 1175  
rack travel mm : 10.25  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
rack travel mm : 11.40  
Tolerance mm : ± 0.10

Rated speed rpm : 800  
rack travel mm : 10.80

Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 92.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 93.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 9.20  
Rated speed rpm : 1220  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 142.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

Note remarks

Edition	: 03.04.96
Test oil	: ISO 4113
Combination No.	: 9 400 087 459
Injection pump	
Pump designation	: PES6P120A720LS7181
	: -10
EP type number	: 0 412 726 870
Governor	
Governer design.	: RQ300/1050PA911-2
Governer no.	: 9 420 080 313
Cust. part No.	: 0160743602

Customer : MBB  
Motor : OM447 LA  
Power KW : 298.0

Inlet Line : 4.1

Test oil inlet		
temp. °C	:	40
Tolerance °C	:	+ 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holder assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar :  $\pm$  1.5

Test Lines : 1 680 750 067

Outside diameter : 6.0

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

Test pressure bar : 26.0  
Tolerance bar :  $\pm$  1.0

```
Prestroke mm      :      5.05
Tolerance mm      :  +-  0.05
Check
tolerance mm      :  +-  0.10
```

Rack travel in mm : 10.50  
Tolerance mm :  $\pm 1.50$

Firing order : 6- 2- 4- 1- 5-  
: 3

Phasing : 0-60-120-180-240  
: -300

Rated speed rpm : 600

Rack travel in mm : 15.40  
Tolerance mm : + 0.10

Del. quantity  
cm3/1000 strokes : 280.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm3/1000s. : +- 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0  
 Rated speed rpm : 300  
 Rack travel in mm : 6.00  
 Tolerance mm : + 0.20  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 15.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 6.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
 guide sleeve  
 travel mm : 1.75  
 Tolerance mm : + 0.25

Rated speed rpm : 1120  
 guide sleeve  
 travel mm : 7.45  
 Tolerance mm : + 0.25

Rated speed rpm : 600  
 guide sleeve  
 travel mm : 6.00  
 Tolerance mm : + 0.10

Rated speed rpm : 1050  
 guide sleeve  
 travel mm : 6.50  
 Tolerance mm : + 0.10

Rated speed rpm : 1160  
 guide sleeve  
 travel mm : 10.00  
 Tolerance mm : + 0.30

GUIDE SLEEVE POSITION

Rated speed rpm : 600  
 Rack travel in mm : 20.00  
 Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
 Aneroid pressure  
 hPa : 1050  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 280.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
 position degree : 40.0  
 tolerance degree : + 4.0

control lever  
 position degree : 101.0  
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 14.00  
 Rated speed rpm : 1103  
 Tolerance 1/min : + 8

rack travel mm : 4.00  
 Rated speed rpm : 1160  
 Tolerance 1/min : + 15

rack travel mm : 0.75  
 Tolerance mm : + 0.75  
 Rated speed rpm : 1300

LOW IDLE

control lever  
 position degree : 74.0  
 tolerance degree : + 4.0

control lever  
 position degree : 11.0  
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 400  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 100  
CRT mm min. :  $>$  9.00

#### TORQUE CONTROL

Rated speed rpm : 600  
rack travel mm : 15.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1050  
rack travel mm : 15.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
rack travel mm : 16.20  
Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### MEASUREMENT

Pressure hPa : 360  
rack travel mm : -4.50  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 740  
rack travel mm : -1.30  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 1340  
rack travel mm : 0.30  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 1440  
rack travel mm : 0.55  
Tolerance mm :  $\pm$  0.05

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  220

Check  
speed 1/min :  $>$  80

Check  
speed 1/min :  $<$  240

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 264.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 298.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### BREAKAWAY

Rack travel in mm : 14.00  
Rated speed rpm : 1103  
Tolerance 1/min :  $\pm$  8

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 275.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  14.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.04.96  
Test oil : ISO 4113  
  
Combination No. : 9 400 087 460  
  
Injection pump  
Pump designation : PES6P120A720LS7114  
: -13  
EP type number : 0 412 726 867  
  
Governor  
Governor design. : RQ300/1050PA911-3  
Governor no. : 9 420 080 314  
  
Cust. part No. : 0140748502

Customer-spec. information  
Customer : MBB  
Motor : OM447 LA  
Power KW : 260.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 417 413 025  
  
Inlet press. bar : 1.5  
  
Test nozzle holde  
assembly : 1 688 901 105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 067  
  
Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 6- 2- 4- 1- 5-  
: 3

Phasing : 0-60-120-180-240  
: -300

## BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 13.50  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 226.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0



Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0  
 Rated speed rpm : 300  
 Rack travel in mm : 6.00  
 Tolerance mm :  $\pm$  0.20  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 13.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  6.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
 guide sleeve  
 travel mm : 2.75  
 Tolerance mm :  $\pm$  0.15  
 Rated speed rpm : 1125  
 guide sleeve  
 travel mm : 7.30  
 Tolerance mm :  $\pm$  0.20  
 Rated speed rpm : 600  
 guide sleeve  
 travel mm : 6.00  
 Tolerance mm :  $\pm$  0.10  
 Rated speed rpm : 1050  
 guide sleeve  
 travel mm : 6.50  
 Tolerance mm :  $\pm$  0.10  
 Rated speed rpm : 1175  
 guide sleeve  
 travel mm : 9.45  
 Tolerance mm :  $\pm$  0.25

##### GUIDE SLEEVE POSITION

Rated speed rpm : 600  
 Rack travel in mm : 20.00  
 Tolerance mm :  $\pm$  0.80

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
 Aneroid pressure  
 hPa : 800  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 226.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

#### CONTROL LEVER

control lever  
 position degree : 34.0  
 tolerance degree :  $\pm$  4.0  
 control lever  
 position degree : 98.0  
 tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 12.20  
 Rated speed rpm : 1103  
 Tolerance 1/min :  $\pm$  8  
 rack travel mm : 4.00  
 Rated speed rpm : 1170  
 Tolerance 1/min :  $\pm$  15  
 rack travel mm : 0.75  
 Tolerance mm :  $\pm$  0.75  
 Rated speed rpm : 1300

#### LOW IDLE

control lever  
 position degree : 76.0  
 tolerance degree :  $\pm$  4.0  
 control lever  
 position degree : 13.0  
 tolerance degree :  $\pm$  4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 380  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 100

CRT mm min. :  $>$  9.00

---

#### TORQUE CONTROL

Rated speed rpm : 600  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1050  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 800  
rack travel mm : 14.10  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### MEASUREMENT

Pressure hPa : 240  
rack travel mm : -2.80  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 560  
rack travel mm : -0.80  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 920  
rack travel mm : 0.25  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 980  
rack travel mm : 0.45  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  220

Check  
speed 1/min :  $>$  80

Check  
speed 1/min :  $<$  240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 215.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 239.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 131.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 12.20  
Rated speed rpm : 1103  
Tolerance 1/min :  $\pm$  8

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 087 461  
Injection pump  
Pump designation : PES5P120A720LS7174  
 : -10  
EP type number : 0 412 725 815  
Governor  
Governor design. : RQ300/1Q50PA774-6  
Governor no. : 9 420 080 315

Cust. part No. : 0140748202

Customer-spec. information  
Customer : MBB  
Motor : OM449 A  
Power kW : 184.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 025  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 067  
Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

## BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 14.00  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 194.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300  
 Rack travel in mm : 6.80  
 Tolerance mm : +- 0.20  
 Del. quantity  
 cm3/1000 strokes : 20.0  
 Tolerance  
 cm3/1000 strokes : +- 3.0  
 Check tolerance  
 cm3/1000S. : +- 6.0  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 8.0  
 Check tolerance  
 cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
 guide sleeve  
 travel mm : 2.15  
 Tolerance mm : +- 0.25

Rated speed rpm : 1110  
 guide sleeve  
 travel mm : 6.45  
 Tolerance mm : +- 0.25

Rated speed rpm : 600  
 guide sleeve  
 travel mm : 6.00  
 Tolerance mm : +- 0.10

Rated speed rpm : 1050  
 guide sleeve  
 travel mm : 6.00  
 Tolerance mm : +- 0.10

Rated speed rpm : 1170  
 guide sleeve  
 travel mm : 9.15  
 Tolerance mm : +- 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
 Tolerance mm : +- 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600

Aneroid pressure  
 hPa : 700  
 Del. quantity  
 cm3/1000 strokes : 194.5  
 Tolerance  
 cm3/1000 strokes : +- 1.0  
 Check tolerance  
 cm3/1000S. : +- 4.0  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 5.0  
 Check tolerance  
 cm3/1000S. : 9.0

CONTROL LEVER

control lever  
 position degree : 36.0  
 tolerance degree : +- 4.0

control lever  
 position degree : 98.0  
 tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 13.70  
 Rated speed rpm : 1103  
 Tolerance i/min : +- 8

rack travel mm : 4.00  
 Rated speed rpm : 1175  
 Tolerance 1/min : +- 15

rack travel mm : 0.75  
 Tolerance mm : +- 0.75  
 Rated speed rpm : 1300

LOW IDLE

control lever  
 position degree : 76.0  
 tolerance degree : +- 4.0

control lever  
 position degree : 13.0  
 tolerance degree : +- 4.0

Testing:

Rated speed rpm : 300  
 rack travel mm : 6.80  
 Tolerance mm : +- 0.10

rack travel mm : 2.00

Rated speed rpm : 410  
 Tolerance 1/min : +- 20  
 Rated speed rpm : 100  
 CRT mm min. : > 10.00

#### TORQUE CONTROL

Rated speed rpm : 600  
 rack travel mm : 14.00  
 Tolerance mm : +- 0.10

Rated speed rpm : 1050  
 rack travel mm : 14.70  
 Tolerance mm : +- 0.10

Rated speed rpm : 750  
 rack travel mm : 14.70  
 Tolerance mm : +- 0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### MEASUREMENT

Pressure hPa : 340  
 rack travel mm : -2.20  
 Tolerance mm : +- 0.10

Pressure hPa : 520  
 rack travel mm : -0.80  
 Tolerance mm : +- 0.10

Pressure hPa : 960  
 rack travel mm : 0.25  
 Tolerance mm : +- 0.05

Pressure hPa : 1040  
 rack travel mm : 0.45  
 Tolerance mm : +- 0.05

#### START CUT-OUT

Rated speed rpm : > 100  
 Rated speed rpm : < 220

Check  
 speed 1/min : > 80  
 Check  
 speed 1/min : < 240

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : 1300  
 Rated speed rpm : 1050  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 210.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +- 1.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +- 4.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
 hPa : 1300  
 Rated speed rpm : 750  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 211.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +- 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +- 5.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 132.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +- 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +- 4.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

#### BREAKAWAY

Rack travel in mm : 13.70  
 Rated speed rpm : 1103  
 Tolerance 1/min : +- 8

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 207.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.80  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 087 500  
Injection pump  
Pump designation : PES6P120A720LS7257  
: -10  
EP type number : 9 400 087 086  
Governor  
Governor design. : RQV300...950PA1242  
Governor no. : 9 420 080 387

Cust. part No. : 0260746602

## Customer-spec. information

Customer : MBB  
Motor : OM 447 LA  
Power KW : 264.8

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 21.00

Firing order : 6- 2- 4- 1- 5-  
: 3

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 14.25  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 275.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0



Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0  
  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 16.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 6.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1050  
 guide sleeve  
 travel mm : 7.80  
 Tolerance mm : ± 0.10

Rated speed rpm : 700  
 guide sleeve  
 travel mm : 5.45  
 Tolerance mm : ± 0.25

Rated speed rpm : 300  
 guide sleeve  
 travel mm : 0.75  
 Tolerance mm : ± 0.25

Rated speed rpm : 500  
 guide sleeve  
 travel mm : 3.25  
 Tolerance mm : ± 0.25

Rated speed rpm : 1165  
 guide sleeve  
 travel mm : 9.45  
 Tolerance mm : ± 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1120

Rack travel in mm : 16.50  
 Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600

Aneroid pressure  
 hPa : 1300  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 275.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 4.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
 position degree : 52.0  
 tolerance degree : ± 4.0

control lever  
 position degree : 117.0  
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.60  
 Rated speed rpm : 1000  
 Tolerance 1/min : ± 5

rack travel mm : 4.00  
 Rated speed rpm : 1125  
 Tolerance 1/min : ± 15

rack travel mm : 0.50  
 Tolerance mm : ± 0.50  
 Rated speed rpm : 1230

LOW IDLE

control lever  
 position degree : 82.0  
 tolerance degree : ± 4.0

control lever  
 position degree : 17.0  
 tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300  
 rack travel mm : 5.50  
 Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 9.20

Rated speed rpm : 325

#### TORQUE CONTROL

Rated speed rpm : 600  
rack travel mm : 14.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 13.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 14.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 840  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1300  
rack travel mm : 14.25  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 760  
rack travel mm : 2.25  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 500  
rack travel mm : 0.90  
Tolerance mm :  $\pm$  0.10

##### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80

Check  
speed 1/min : < 240

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1300  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 245.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : 1300  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 265.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 146.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### BREAKAWAY

Rack travel in mm : 12.60  
Rated speed rpm : 1000  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 236.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0

---

LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.03.96  
Test oil : ISO 4113

Combination No. : 0 402 066 702

Injection pump  
Pump designation : PES6P110A120RS3336  
: -1  
EP type number : 0 412 016 751

Governor  
Governor design. : RSV550...1100P2A586  
: -1  
Governor no. : 0 421 833 480

Cust. part No. : 3926887

Customer-spec. information  
Customer : CDC  
Motor : 6CTA  
Power KW : 194.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0  
x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

°NW after s.o.d. : 8.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## Beginning of delivery differende

and maximum rack  
travel : 15.00  
Difference ° CS : 1.50

---

#### BASIC SETTING

Rated speed rpm : 1100

---

Rack travel in mm : 14.25  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 187.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 3.50

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 187.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### CONTROL LEVER

control lever  
position degree : 95.0  
tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 13.25  
Rated speed rpm : 1185  
Tolerance 1/min :  $\pm$  5

rack travel mm : 8.50  
Rated speed rpm : 1235  
Tolerance 1/min :  $\pm$  5

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1400

---

#### LOW IDLE

control lever  
position degree : 67.5  
tolerance degree :  $\pm$  4.0

#### Setting point w/out bumper spring

Rated speed rpm : 550  
rack travel mm : 4.60

#### Testing:

Rated speed rpm : 550  
rack travel mm : 5.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. :  $>$  19.00

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 14.25  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1000  
Pressure hPa : 1500

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1000  
rack travel mm : 11.10  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1000

Pressure hPa : 995  
rack travel mm : 13.45  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 655  
rack travel mm : 12.05  
Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 122.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### BREAKAWAY

Rack travel in mm : 13.25  
Rated speed rpm : 1185  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.00  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 154.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 28.03.96  
Test oil : ISO 4113  
Combination No. : 0 402 776 834  
Injection pump  
Pump designation : PES6P120A720RS7382  
EP type number : 0 412 726 943  
Governor  
Governor design. : RSV400...750P4A610  
: -1  
Governor no. : 0 421 833 520

Cust. part No. : RE66451

Customer-spec. information  
Customer : DEERE  
Motor : 6081 HF001  
Power KW : 175.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 079

Inlet press. bar : 2.0

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

\*NW after s.o.d. : 9.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack  
travel : 14.00  
Difference ° CS : 2.50

## BASIC SETTING

Rated speed rpm : 700

---

Rack travel in mm : 13.40  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 247.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 2.50

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 247.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

C10

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 91.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 12.00  
Rated speed rpm : 755  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 790  
Tolerance 1/min :  $\pm$  5

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 950

rack travel mm : 4.00  
Rated speed rpm : 820

---

##### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 5.00

##### Testing:

Rated speed rpm : 400  
rack travel mm : 5.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100  
CRT mm min. :  $>$  19.00

---

##### TORQUE CONTROL



Rated speed rpm : 700  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80

---

#### BREAKAWAY

Rack travel in mm : 12.00  
Rated speed rpm : 755  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 28.03.96  
Test oil : ISO 4113  
Combination No. : 0 402 776 835  
Injection pump  
Pump designation : PES6P120A72ORS7382  
EP type number : 0 412 726 943

Governor  
Governor design. : RSV400...750P4A607  
:-1  
Governor no. : 0 421 833 521

Cust. part No. : RE66458

Customer-spec. information  
Customer : DEERE  
Motor : 6081 HF001  
Power KW : 175.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 079

Inlet press. bar : 2.0

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
:-300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 9.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## Beginning of delivery differende

and maximum rack  
travel : 14.00  
Difference ° CS : 2.50

## BASIC SETTING

Rated speed rpm : 700

---

Rack travel in mm : 13.40  
Tolerance mm : + 0.05

---

Del. quantity  
cm3/1000 strokes : 247.0

---

Tolerance  
cm3/1000 strokes : + 1.0

---

Check tolerance  
cm3/1000S. : + 4.0

---

Speed  
Tolerance  
cm3/1000 strokes : 5.0

---

Check tolerance  
cm3/1000S. : 9.0

---

Del. quantity  
cm3/1000 strokes : 22.0  
Tolerance  
cm3/1000 strokes : + 3.0  
Check tolerance  
cm3/1000S. : + 5.0  
Speed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

governor spring  
pre-tension  
click setting x : 2.50

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -  
Del. quantity  
cm3/1000 strokes : 247.0  
Tolerance  
cm3/1000 strokes : + 1.0

---

Check tolerance  
cm3/1000S. : + 4.0  
Speed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 91.0  
tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 12.00  
Rated speed rpm : 755  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 790  
Tolerance 1/min : + 5

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 950

rack travel mm : 4.00  
Rated speed rpm : 820

---

##### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : + 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 5.00

##### Testing:

Rated speed rpm : 400  
rack travel mm : 5.50  
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

---

##### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm : > 100

Check  
speed 1/min : > 80

---

#### BREAKAWAY

Rack travel in mm : 12.00  
Rated speed rpm : 755  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.04.96  
Test oil : ISO 4113

Combination No. : 9 400 030 740

Injection pump  
Pump designation : PES6A95D320/3RS2881  
EP type number : 9 410 037 215

Governor  
Governor design. : RSV425...1200A0C853R  
Governor no. : 9 420 034 719

Cust. part No. : 3929410

## Customer-spec. information

Customer : CDC  
Motor : 6BT  
Power KW : 100.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

°NW after s.o.d. : 7.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 10.85  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 90.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 3.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 90.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

##### CONTROL LEVER

control lever  
position degree : 101.5  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 9.85  
Rated speed rpm : 1250  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.50  
Rated speed rpm : 1305  
Tolerance 1/min :  $\pm$  5

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1400

rack travel mm : 4.50  
Rated speed rpm : 1310

##### LOW IDLE

control lever  
position degree : 78.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 425  
rack travel mm : 4.60

##### Testing:

Rated speed rpm : 425  
rack travel mm : 5.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 1200  
rack travel mm : 10.85  
Tolerance mm :  $\pm$  0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 800  
Pressure hPa : 900

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 800  
rack travel mm : 8.70  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 800

Pressure hPa : 450  
rack travel mm : 10.50  
Tolerance mm :  $\pm 0.20$

Pressure hPa : 275  
rack travel mm : 9.50  
Tolerance mm :  $\pm 0.20$

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 65.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 3.0$

---

BREAKAWAY

Rack travel in mm : 9.85  
Rated speed rpm : 1250  
Tolerance 1/min :  $\pm 5$

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm 0.50$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 10.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 15.0$

---

LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.5$   
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.04.96  
Test oil : ISO 4113  
Combination No. : 0 400 074 873  
Injection pump  
Pump designation : PES4M55C320RS184  
EP type number : 0 410 054 938  
Governor  
Governor design. : RSF375/2000M87  
Governor no. : 0 420 021 290

Cust. part No. :

Customer-spec. information  
Customer : MB-PKW  
Motor : OM601-2.3L  
Power KW : 60.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde  
assembly : 1 688 901 111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 21.00  
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

°NW after s.o.d. : 16.50  
Tolerance : ± 0.20  
Check  
tolerance °NW : ± 0.30

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.70  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 1.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5



Check tolerance  
 cm3/1000S. : 3.0  
 Rated speed rpm : 375  
 Rack travel in mm : 4.70  
 Tolerance mm :  $\pm$  0.10  
 Del. quantity  
 cm3/1000 strokes : 6.5  
 Tolerance  
 cm3/1000 strokes :  $\pm$  0.5  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 1.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### IDLE STAGE

Rack travel in mm : 6.25  
 Tolerance mm :  $\pm$  0.25

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
 Ref. pressure  
 ALDA / ADA hPa : 1100  
 Del. quantity  
 cm3/1000 strokes : 40.5  
 Tolerance  
 cm3/1000 strokes :  $\pm$  0.5  
 Check tolerance  
 cm3/1000S. :  $\pm$  1.5  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 2.5  
 Check tolerance  
 cm3/1000S. : 3.0

##### RATED SPEED

control lever  
 position degree : 50.0  
 rack travel mm : 9.00  
 Rated speed rpm : 2200  
 rack travel mm : 0.50  
 Tolerance mm :  $\pm$  0.50  
 Rated speed rpm : 2500

##### SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000  
 CRT mm max. : 1.45

##### LOW IDLE

control lever  
 position degree : 12.5  
 tolerance degree :  $\pm$  2.0

Setting point w/out bumper spring  
 Rated speed rpm : 375  
 rack travel mm : 4.70

##### SET IDLE AUXILIARY SPRING

Rated speed rpm : 450  
 rack travel mm : 3.40  
 Tolerance mm :  $\pm$  0.10

##### Load pick-up

Rated speed rpm : 250  
 CRT mm min. :  $>$  10.20

Rated speed rpm : 1000  
 CRT mm max. : 1.45  
 rack travel mm : 4.70  
 Rated speed rpm : 375

##### TORQUE CONTROL

Rated speed rpm : 1000  
 rack travel mm : 12.70  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1500  
 rack travel mm : 12.30  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1950  
 rack travel mm : 12.20  
 Tolerance mm :  $\pm$  0.10

##### ADJUSTMENT TEST ADA/ALDA

##### SETTING

Rated speed rpm : 1000  
 Ref. pressure  
 ALDA / ADA hPa : 940

rack travel mm : -0.10  
Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : 900  
rack travel mm : -0.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : 750  
rack travel mm : -1.50  
Tolerance mm :  $\pm$  0.20

#### FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 41.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.8  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  1.8  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 1950  
Spreed  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 41.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  2.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.5

#### HIGH IDLE

Ref. pressure  
ALDA / ADA hPa : 1100

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm :  $>$  20.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 59.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 7.8  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  2.3  
Spreed  
Check tolerance  
cm<sup>3</sup>/1000S. : 1.5

Grad :  $>$  47.00

Grad :  $<$  44.50

#### SETTING PNEUMATIC FAST IDLE (ELA)

control lever  
position degree : 12.5  
tolerance degree :  $\pm$  2.0

Rated speed rpm : 425

Rack travel in mm : 7.30  
Tolerance mm :  $\pm$  0.80  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Vacuum hPa : 400.0

---

SETTING/TESTING ELECTRONIC IDLE  
REGULATION (ELR)

control lever  
position degree : 12.5  
tolerance degree :  $\pm$  2.0

control lever  
position degree : 50.0

---

ADJUSTMENT

control lever  
position degree : 50.0

---

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 375

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 01.04.96  
Test oil : ISO 4113  
Combination No. : 0 401 878 140  
Injection pump  
Pump designation : PE8P120A520/5RS427  
EP type number : 0 411 828 048  
Governor  
Governor design. : RSUV300...900POA320  
: -1  
Governor no. : 0 421 829 107  
Cust. part No. :

Customer-spec. information  
Customer : MWM  
Motor : TBD 234 V8  
Power kW : 400.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 025  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 1 688 901 019  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 067  
Outside diameter : 6.0

x inside diameter : 1.5  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 8- 5- 4- 7  
: - 2- 3- 6

Phasing : 0-30-90-120-180  
: -210-270-300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.75  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 250.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800  
Rack travel in mm : 0.50  
Tolerance mm : + 0.20

governor spring  
pre-tension  
click setting x : 3.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 250.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 119.0  
tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 12.70  
Rated speed rpm : 945  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 980  
Tolerance 1/min : + 15

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1130

##### LOW IDLE

control lever  
position degree : 76.0  
tolerance degree : + 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 300  
rack travel mm : 5.10

##### Testing:

Rated speed rpm : 300  
rack travel mm : 5.60  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 350  
Tolerance 1/min : + 30

##### TORQUE CONTROL

Dimension a mm : 3.90  
Rated speed rpm : 900  
rack travel mm : 13.75  
Tolerance mm : + 0.05

Rated speed rpm : 450  
rack travel mm : 13.75  
Tolerance mm : + 0.05

Rated speed rpm : 280  
rack travel mm : 15.20

Tolerance mm :  $\pm$  0.30

---

BREAKAWAY

Rack travel in mm : 12.70  
Rated speed rpm : 945  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100

---

LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.04.96

Test oil : ISO 4113

Combination No. : 0 402 046 878

## Injection pump

Pump designation : PES6P120A720RS3370

EP type number : 0 412 026 790

## Governor

Governor design. : RQV300...1100PA1284K

Governor no. : 0 421 815 517

Cust. part No. :

## Customer-spec. information

Customer : IVECO-FRANCE

Motor : 8360.46.4106

Power KW : 176.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 034

Inlet press. bar : 2.5

## Overflow quantity

min. l/h : 160

Tolerance l/h : ± 20.0

## Test nozzle holder

assembly : 1 688 901 105

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.15

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 13.50

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.30

## Check

tolerance °NW : ± 0.50

## Start of delivery mark

## Check

tolerance °NW : ± 0.40

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.80  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 173.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 7.90  
Tolerance mm :  $\pm$  0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 2.68  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1155  
guide sleeve  
travel mm : 9.00  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 385  
guide sleeve  
travel mm : 3.01  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1450

guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1325

Rack travel in mm : 10.00  
Tolerance mm :  $\pm$  2.70

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 173.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 116.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 12.80  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1265  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1450

##### LOW IDLE

control lever  
position degree : 79.0  
tolerance degree :  $\pm$  4.0



### Testing:

Rated speed rpm : 300  
rack travel mm : 6.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300  
CRT mm min. :  $>$  8.30  
Rated speed rpm : 330

### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 13.95  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 650  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 400  
rack travel mm : 13.00  
Tolerance mm :  $\pm$  0.20

### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 800  
Pressure hPa : 1200  
rack travel mm : 13.95  
Tolerance mm :  $\pm$  0.15

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 800  
rack travel mm : 10.95  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 800

Pressure hPa : 550  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 285  
rack travel mm : 11.55  
Tolerance mm :  $\pm$  0.05

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### START CUT-OUT

Rated speed rpm :  $>$  180  
Rated speed rpm :  $<$  220

Check  
speed 1/min :  $>$  160  
Check  
speed 1/min :  $<$  240

### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 187.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 175.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 84.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

### BREAKAWAY

Rack travel in mm : 12.80  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 12.50  
Tolerance mm :  $\pm$  0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 80.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 19.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 7.90  
Tolerance mm : +- 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.04.96  
Test oil : ISO 4113  
Combination No. : 0 402 046 879  
Injection pump  
Pump designation : PES6P120A320RS3284B  
EP type number : 0 412 026 795  
Governor  
Governor design. : RQ275/1050PA999-3B  
Governor no. : 0 421 801 809

Cust. part No. : 5119B\_\_\_\_\_

Customer-spec. information  
Customer : RENAULT V.I.  
Motor : MIDR 062045\_I/3B  
Power KW : 173.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2 417 413 071  
Inlet press. bar : 2.5  
Test nozzle holder  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 089  
Outside diameter : 8.0

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x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50  
Start of delivery mark  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700  
Rack travel in mm : 11.55  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -6.40  
Tolerance mm : ± 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.30  
Tolerance mm : ± 0.20

Rated speed rpm : 1141  
guide sleeve  
travel mm : 6.40  
Tolerance mm : ± 0.15

Rated speed rpm : 1050  
guide sleeve  
travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 369  
guide sleeve  
travel mm : 3.61  
Tolerance mm : ± 0.10

Rated speed rpm : 490  
guide sleeve  
travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 1340  
guide sleeve  
travel mm : 11.50  
Tolerance mm : ± 0.50

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---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm : ± 0.80

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

---

##### CONTROL LEVER

control lever  
position degree : 270.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : -1.00  
Rated speed rpm : 1122  
Tolerance 1/min : ± 8

rack travel mm : -7.50  
Rated speed rpm : 1225  
Tolerance 1/min : ± 15

rack travel mm : -11.00  
Tolerance mm : ± 0.55  
Rated speed rpm : 1350

---

##### LOW IDLE

control lever  
position degree : 252.0  
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 275  
rack travel mm : -6.40  
Tolerance mm :  $\pm$  0.10

rack travel mm : -9.50  
Rated speed rpm : 338  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 200

CRT mm max. :  $<$  -5.00

---

#### TORQUE CONTROL

Rated speed rpm : 700

Rated speed rpm : 1050  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : -1.35  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 280  
rack travel mm : -0.55  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 200  
rack travel mm : -1.05  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  195

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  215

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 163.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 108.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : -1.00  
Rated speed rpm : 1122  
Tolerance 1/min :  $\pm$  8

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 275  
rack travel mm : -6.40  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.04.96  
Test oil : ISO 4113  
Combination No. : 0 402 640 844  
Injection pump  
Pump designation : PE12P120A520LS7879  
EP type number : 0 412 620 841  
Governor  
Governor design. : RQV350...1200PA1167  
Governor no. : 0 421 814 107

Cust. part No. : 0250742402

Customer-spec. information  
Customer : MTU  
Motor : 12V183-03  
Power KW : 845.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1,3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 150  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 12- 1- 5- 9- 8  
                  : - 3- 4- 11- 10  
                  : - 2- 6- 7

Phasing : 0-45-60-105-120  
          : -165-180-225-240  
          : -285-300-345  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 12

## BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 12.80  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 310.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 350

Rack travel in mm : 4.00  
Tolerance mm : + 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0

Check tolerance  
cm<sup>3</sup>/1000S. : 15.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.53  
Tolerance mm : + 0.15

Rated speed rpm : 1281  
guide sleeve  
travel mm : 8.53  
Tolerance mm : + 0.20

Rated speed rpm : 990  
guide sleeve  
travel mm : 5.68  
Tolerance mm : + 0.25

Rated speed rpm : 420  
guide sleeve  
travel mm : 2.86  
Tolerance mm : + 0.25

Rated speed rpm : 470  
guide sleeve  
travel mm : 3.42

Tolerance mm : + 0.25

Rated speed rpm : 620  
guide sleeve  
travel mm : 3.89  
Tolerance mm : + 0.25

Rated speed rpm : 1366  
guide sleeve  
travel mm : 10.00  
Tolerance mm : + 0.25

Rated speed rpm : 1470  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

---

GUIDE SLEEVE POSITION

Rated speed rpm : 1310

Rack travel in mm : 12.00  
Tolerance mm : + 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200  
Aneroid pressure  
hPa : 2000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 310.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

CONTROL LEVER

control lever  
position degree : 122.0  
tolerance degree : + 4.0

---

RATED SPEED

rack travel mm : 11.80  
Rated speed rpm : 1245  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1330  
Tolerance 1/min : + 15



rack travel mm : 0.75  
Tolerance mm :  $\pm$  0.75  
Rated speed rpm : 1470

---

#### LOW IDLE

control lever  
position degree : 68.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 4.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 250  
CRT mm min. :  $>$  6.30  
Rated speed rpm : 450

---

#### TORQUE CONTROL

Rated speed rpm : 1200  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 9.70  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 600  
Pressure hPa : 2000  
rack travel mm : 12.70  
Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 600  
rack travel mm : 5.90  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 600

Pressure hPa : 600  
rack travel mm : 9.20

D07

Tolerance mm :  $\pm$  0.05

Pressure hPa : 250  
rack travel mm : 6.80  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 1600  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 1200  
rack travel mm : 10.70  
Tolerance mm :  $\pm$  0.10

---

#### START CUT-OUT

Rated speed rpm :  $>$  240  
Rated speed rpm :  $<$  270

Check  
speed 1/min :  $>$  220  
Check  
speed 1/min :  $<$  290

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 267.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 15.0

---

#### BREAKAWAY

Rack travel in mm : 11.80  
Rated speed rpm : 1245  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 360.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 350  
rack travel mm : 4.00  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 15.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.03.96  
Test oil : ISO 4113  
Combination No. : 0 402 648 790  
Injection pump  
Pump designation : PE8P130A920/5LS7867  
EP type number : 0 412 638 805  
Governor  
Governor design. : RQV400...1000PA1285  
Governor no. : 0 421 814 177

Cust. part No. :

Customer-spec. information  
Customer : IVECO-FIAT  
Motor : 8285.22.014  
Power KW : 277.0

## TEST BENCH REQUIREMENTS

Inlet Line : 4.2

Test oil inlet  
temp. °C : 43  
Tolerance °C : ± 2.5

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.15  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.00  
Tolerance mm : ± 0.50

Firing order : 1- 8- 4- 3- 6  
                  : - 5- 7- 2

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 10.25  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 188.0

Tolerance  
cm3/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : ± 4.0

Spread  
Tolerance  
cm3/1000 strokes : 8.0

Check tolerance cm3/1000S.	:	12.0
Rated speed rpm	:	400
Rack travel in mm	:	4.30
Tolerance mm	:	+ 0.20
Del. quantity cm3/1000 strokes	:	23.0
Tolerance cm3/1000 strokes	:	+ 3.0
Check tolerance cm3/1000S.	:	+ 7.0
Speed Tolerance cm3/1000 strokes	:	6.0
Check tolerance cm3/1000S.	:	10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	400
guide sleeve travel mm	:	1.90
Tolerance mm	:	+ 0.20
Rated speed rpm	:	1080
guide sleeve travel mm	:	8.57
Tolerance mm	:	+ 0.15
Rated speed rpm	:	764
guide sleeve travel mm	:	5.74
Tolerance mm	:	+ 0.25
Rated speed rpm	:	520
guide sleeve travel mm	:	3.66
Tolerance mm	:	+ 0.25
Rated speed rpm	:	1320
guide sleeve travel mm	:	11.50
Tolerance mm	:	+ 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	:	1220
Rack travel in mm	:	8.00
Tolerance mm	:	+ 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	550
Aneroid pressure hPa	:	900
Del. quantity cm3/1000 strokes	:	188.0
Tolerance cm3/1000 strokes	:	+ 1.0
Check tolerance cm3/1000S.	:	+ 4.0
Speed Tolerance cm3/1000 strokes	:	8.0
Check tolerance cm3/1000S.	:	12.0

CONTROL LEVER

control lever position degree	:	114.0
tolerance degree	:	+ 4.0

RATED SPEED

rack travel mm	:	9.20
Rated speed rpm	:	1070
Tolerance 1/min	:	+ 5
rack travel mm	:	4.00
Rated speed rpm	:	1155
Tolerance 1/min	:	+ 15
rack travel mm	:	0.50
Tolerance mm	:	+ 0.50
Rated speed rpm	:	1250

LOW IDLE

control lever position degree	:	65.0
tolerance degree	:	+ 4.0

Testing:

Rated speed rpm	:	400
rack travel mm	:	4.30
Tolerance mm	:	+ 0.10
Rated speed rpm	:	300
CRT mm min.	:	> 5.80

Rated speed rpm : 430

---

#### TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 10.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 10.20  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 10.25  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 330  
rack travel mm : 9.60  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 355  
rack travel mm : 10.05  
Tolerance mm :  $\pm$  0.05

---

##### START CUT-OUT

Rated speed rpm :  $>$  100

Check  
speed 1/min :  $>$  80

---

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 157.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

##### BREAKAWAY

Rack travel in mm : 9.20  
Rated speed rpm : 1070  
Tolerance 1/min :  $\pm$  5

---

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

##### LOW IDLE

Rated speed rpm : 400  
rack travel mm : 4.30  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  7.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.03.96  
Test oil : ISO 4113  
Combination No. : 0 402 795 204  
Injection pump  
Pump designation : PES5H120/720/3LS1004  
: -1  
EP type number : 0 412 725 204

Governor  
Governor design. : RE33  
Governor no. : 0 421 890 364

Cust. part No. : 51.111103-7538

Customer-spec. information  
Customer : MAN  
Motor : D 2865 LF 09  
Power kW : 250.0

## TEST BENCH REQUIREMENTS

Inlet line : 4-unten

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 165  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

D13

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 10.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery blocking

Barrel no. : 5

(B) POSITIONER TESTING  
Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, U<sub>act</sub> = 2.5 V

# TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

## (C) INJECTION PUMP WITH POSITIONER

### TEST POINT V1

Rated speed rpm : 750  
Uact V : 3.350  
Prestroke solenoid  
Stroke mm : 10.00  
Del. quantity  
cm3/1000 strokes : 332.0  
Tolerance  
cm3/1000 strokes : +/- 1.0  
Check tolerance  
cm3/1000S. : +/- 4.0  
Spreed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

### FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750  
Uact V : 1.450  
Prestroke solenoid  
Stroke mm : 10.00  
Del. quantity  
cm3/1000 strokes : 72.0  
Tolerance  
cm3/1000 strokes : +/- 4.0  
Check tolerance  
cm3/1000S. : +/- 8.0  
Spreed  
Tolerance  
cm3/1000 strokes : 4.0  
Check tolerance  
cm3/1000S. : 8.0

Rated speed rpm : 1000  
Uact V : 3.290  
Prestroke solenoid  
Stroke mm : 8.00  
Del. quantity  
cm3/1000 strokes : 311.0



Tolerance  
cm3/1000 strokes : +- 4.0  
Check tolerance  
cm3/1000S. : +- 8.0

Rated speed rpm : 500  
Uact V : 2.900  
Prestroke solenoid  
Stroke mm : 9.20  
Del. quantity  
cm3/1000 strokes : 303.0  
Tolerance  
cm3/1000 strokes : +- 5.0  
Check tolerance  
cm3/1000S. : +- 9.0

Rated speed rpm : 500  
Uact V : 2.100  
Prestroke solenoid  
Stroke mm : 6.20  
Del. quantity  
cm3/1000 strokes : 172.0  
Tolerance  
cm3/1000 strokes : +- 4.0  
Check tolerance  
cm3/1000S. : +- 8.0

#### TEST POINT L1

Rated speed rpm : 300  
Uact V : 1.500  
Tolerance Volt : +- 0.060  
Check tolerance  
Volt : +- 0.080  
Prestroke solenoid  
Stroke mm : 7.20  
Del. quantity  
cm3/1000 strokes : 32.0  
Tolerance  
cm3/1000 strokes : +- 3.0  
Speed  
Tolerance  
cm3/1000 strokes : +- 3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 2.450  
Prestroke solenoid  
Stroke mm : 7.00  
Del. quantity  
cm3/1000 strokes : 178.0  
Tolerance  
cm3/1000 strokes : +- 10.0  
Check tolerance  
cm3/1000S. : +- 14.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.03.96  
Test oil : ISO 4113  
  
Combination No. : 0 402 795 205  
  
Injection pump  
Pump designation : PES5H120/720/3LS1002  
: -2  
EP type number : 0 412 725 205  
  
Governor  
Governor design. : RE33  
Governor no. : 0 421 890 362  
  
Cust. part No. : 51.111103-7540

---

Customer-spec. information  
Customer : MAN  
Motor : D 2865 LUH 07  
Power KW : 228.0

---

## TEST BENCH REQUIREMENTS

Inlet line : 4-unten  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 2 417 413 082  
  
Inlet press. bar : 3.0  
Tolerance bar : ± 0.1  
  
Overflow quantity  
min. l/h : 165  
Tolerance l/h : ± 10.0  
  
Test nozzle holde  
assembly : 1 688 901 105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089  
  
Outside diameter : 8.0  
  
x inside diameter : 3.0  
x length mm : 600

---

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

---

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 10.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 0.50  
  
Firing order : 1- 3- 5- 4- 2  
  
Phasing : 0-72-144-216-288  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50  
  
Start of delivery blocking  
  
Barrel no. : 5

---

(B) POSITIONER TESTING  
Warm-up time: 3 minutes at  
n=600 min-1, Uact = 2.5 V

# TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(ALL P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

## (C) INJECTION PUMP WITH POSITIONER

### TEST POINT V1

Rated speed rpm : 750  
Uact V : 3.350  
Prestroke solenoid  
Stroke mm : 10.00  
Del. quantity  
cm3/1000 strokes : 332.0  
Tolerance  
cm3/1000 strokes : +/- 1.0  
Check tolerance  
cm3/1000S. : +/- 4.0  
Speed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

### FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750  
Uact V : 1.450  
Prestroke solenoid  
Stroke mm : 10.00  
Del. quantity  
cm3/1000 strokes : 72.0  
Tolerance  
cm3/1000 strokes : +/- 4.0  
Check tolerance  
cm3/1000S. : +/- 8.0  
Speed  
Tolerance  
cm3/1000 strokes : 4.0  
Check tolerance  
cm3/1000S. : 8.0

Rated speed rpm : 1000  
Uact V : 3.290  
Prestroke solenoid  
Stroke mm : 8.00  
Del. quantity  
cm3/1000 strokes : 311.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

Rated speed rpm : 500  
Uact V : 2.900  
Prestroke solenoid  
Stroke mm : 9.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 303.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  9.0

Rated speed rpm : 500  
Uact V : 2.100  
Prestroke solenoid  
Stroke mm : 6.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 172.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

#### TEST POINT L1

Rated speed rpm : 300  
Uact V : 1.500  
Tolerance Volt :  $\pm$  0.060  
Check tolerance  
Volt :  $\pm$  0.080  
Prestroke solenoid  
Stroke mm : 7.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 32.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 2.450  
Prestroke solenoid  
Stroke mm : 7.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 178.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.03.96  
Test oil : ISO 4113

Combination No. : 0 402 795 803

Injection pump  
Pump designation : PES5P120A720/3LS7418  
EP type number : 0 412 725 824

Governor  
Governor design. : RE30  
Governor no. : 0 421 890 039

Cust. part No. : 51.11103-7511

Customer-spec. information  
Customer : MAN  
Motor : D 2865 LF 24  
Power KW : 213.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 13.00

Rack travel in mm : 13.00  
Tolerance mm : ± 0.50  
Tolerance mm : ± 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery blocking

Barrel no. : 5

---

### (B) POSITIONER TESTING

Warm-up time: 3 minutes at  
 $n=600 \text{ min}^{-1}$ ,  $U_{act} = 2.5 \text{ V}$

#### TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed  $\text{min}^{-1}$ : 0

Setting point  
(P, R and H pump)

$U_{act} \text{ V}$  : 3.100  
CRT mm : 13.00  
Tolerance mm :  $\pm 0.05$   
Check  
tolerance mm :  $\pm 0.10$

Check value  
(P, R and H pump)

$U_{act} \text{ V}$  : 1.700  
CRT mm : 6.15  
Tolerance mm :  $\pm 0.25$   
Check  
tolerance mm :  $\pm 0.30$

Setting point  
(M pump)

$U_{act} \text{ V}$  : 3.100  
CRT mm : 12.50  
Tolerance mm :  $\pm 0.05$   
Check  
tolerance mm :  $\pm 0.10$

Check value  
(M pump)

$U_{act} \text{ V}$  : 1.700  
CRT mm : 5.50  
Tolerance mm :  $\pm 0.25$   
Check  
tolerance mm :  $\pm 0.30$

Stop position

$U_{act} \text{ V}$  : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm :  $\pm 0.25$   
Check  
tolerance mm :  $\pm 0.35$

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed  $\text{min}^{-1}$ : 60  
Amplitude V : 1.4  
Tolerance V :  $\pm 0.6$   
Check  
tolerance V :  $\pm 1.20$

Engine speed  $\text{min}^{-1}$ : 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

---

### (C) INJECTION PUMP WITH POSITIONER

#### TEST POINT V1

Rated speed rpm : 750  
 $U_{act} \text{ V}$  : 3.100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 271.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.0$   
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000  
 $U_{act} \text{ V}$  : 3.120  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 252.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.0$

Rated speed rpm : 750  
 $U_{act} \text{ V}$  : 1.470  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 5.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 9.0$   
Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 500  
Uact V : 1.950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 176.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

TEST POINT L1

Rated speed rpm : 325  
Uact V : 1.470  
Tolerance Volt : ± 0.060  
Check tolerance  
Volt : ± 0.080  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.03.96  
Test oil : ISO 4113  
Combination No. : 0 402 796 039  
Injection pump  
Pump designation : PES6H110/32ORS13-1  
EP type number : 0 412 716 004

Governor  
Governor design. : RE36  
Governor no. : 0 421 890 363

Cust. part No. : 51.11103-7529

Customer-spec. information  
Customer : MAN  
Motor : D0826 LF13/LFL09  
Power KW : 191.0

## TEST BENCH REQUIREMENTS

Inlet line : 3-unten

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 165  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 8.00  
Tolerance mm : ± 0.50  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery blocking

Barrel no. : 1

## (B) POSITIONER TESTING

Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V



# TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(ALL P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

## (C) INJECTION PUMP WITH POSITIONER

### TEST POINT V1

Rated speed rpm : 850  
Uact V : 2.490  
Prestroke solenoid  
Stroke mm : 11.10  
Del. quantity  
cm3/1000 strokes : 231.0  
Tolerance  
cm3/1000 strokes : +/- 1.0  
Check tolerance  
cm3/1000S. : +/- 4.0  
Spreed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

### FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 800  
Uact V : 1.580  
Prestroke solenoid  
Stroke mm : 7.70  
Del. quantity  
cm3/1000 strokes : 92.0  
Tolerance  
cm3/1000 strokes : +/- 4.0  
Check tolerance  
cm3/1000S. : +/- 8.0  
Spreed  
Tolerance  
cm3/1000 strokes : 4.0  
Check tolerance  
cm3/1000S. : 7.0

Rated speed rpm : 1150  
Uact V : 2.440  
Prestroke solenoid  
Stroke mm : 9.30  
Del. quantity  
cm3/1000 strokes : 206.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 10.0

Rated speed rpm : 600  
Uact V : 2.220  
Prestroke solenoid  
Stroke mm : 12.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 211.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 10.0

Rated speed rpm : 500  
Uact V : 1.750  
Prestroke solenoid  
Stroke mm : 9.80  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 113.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 9.0

#### TEST POINT L1

Rated speed rpm : 300  
Uact V : 1.650  
Tolerance Volt : +- 0.060  
Check tolerance  
Volt : +- 0.080  
Prestroke solenoid  
Stroke mm : 11.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 35.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 2.050  
Prestroke solenoid  
Stroke mm : 5.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 82.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.03.96  
Test oil : ISO 4113  
Combination No. : 0 402 796 040  
Injection pump  
Pump designation : PES6H120/32ORS10-1  
EP type number : 0 412 726 009

Governor  
Governor design. : RE36  
Governor no. : 0 421 890 363

Cust. part No. : 51.11103-7537

Customer-spec. information  
Customer : MAN  
Motor : D 0826 LUH 12  
Power KW : 162.0

## TEST BENCH REQUIREMENTS

Inlet line : 3-unten

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 160  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 8.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery blocking

Barrel no. : 1

## (B) POSITIONER TESTING

Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, U<sub>act</sub> = 2.5 V

# TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

## (C) INJECTION PUMP WITH POSITIONER

### TEST POINT V1

Rated speed rpm : 800  
Uact V : 2.510  
Prestroke solenoid  
Stroke mm : 13.20  
Del. quantity  
cm3/1000 strokes : 222.0  
Tolerance  
cm3/1000 strokes : +/- 1.0  
Check tolerance  
cm3/1000S. : +/- 4.0  
Spreed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

### FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 800  
Uact V : 1.400  
Prestroke solenoid  
Stroke mm : 12.00  
Del. quantity  
cm3/1000 strokes : 60.0  
Tolerance  
cm3/1000 strokes : +/- 4.0  
Check tolerance  
cm3/1000S. : +/- 8.0  
Spreed  
Tolerance  
cm3/1000 strokes : 4.0  
Check tolerance  
cm3/1000S. : 7.0

Rated speed rpm : 1200  
Uact V : 2.540  
Prestroke solenoid  
Stroke mm : 10.30  
Del. quantity  
cm3/1000 strokes : 209.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 6.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 10.0

Rated speed rpm : 500  
Uact V : 1.930  
Prestroke solenoid  
Stroke mm : 10.40  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 146.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 8.0

#### TEST POINT L1

Rated speed rpm : 300  
Uact V : 1.440  
Tolerance Volt : ± 0.060  
Check tolerance  
Volt : ± 0.080  
Prestroke solenoid  
Stroke mm : 8.80  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 2.100  
Prestroke solenoid  
Stroke mm : 7.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 104.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 6.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.03.96  
Test oil : ISO 4113

Combination No. : 0 402 796 204

Injection pump  
Pump designation : PES6H120/720/3LS1005  
: -1  
EP type number : 0 412 726 204

Governor  
Governor design. : RE33  
Governor no. : 0 421 890 364

Cust. part No. : 51.111103-7539

Customer-spec. information  
Customer : MAN  
Motor : D 2866 LF 16  
Power KW : 294.0

## TEST BENCH REQUIREMENTS

Inlet line : 4-unten

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 135  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 10.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-  
: 3

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery blocking

Barrel no. : 6

(B) POSITIONER TESTING  
Warm-up time: 3 minutes at  
n=600 min-1, Uact = 2.5 V

# TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

## (C) INJECTION PUMP WITH POSITIONER

### TEST POINT V1

Rated speed rpm : 750  
Uact V : 3.350  
Prestroke solenoid  
Stroke mm : 10.00  
Del. quantity  
cm3/1000 strokes : 332.0  
Tolerance  
cm3/1000 strokes : +/- 1.0  
Check tolerance  
cm3/1000S. : +/- 4.0  
Spreed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

### FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750  
Uact V : 1.450  
Prestroke solenoid  
Stroke mm : 10.00  
Del. quantity  
cm3/1000 strokes : 74.0  
Tolerance  
cm3/1000 strokes : +/- 4.0  
Check tolerance  
cm3/1000S. : +/- 8.0  
Spreed  
Tolerance  
cm3/1000 strokes : 4.0  
Check tolerance  
cm3/1000S. : 8.0  
Rated speed rpm : 1000  
Uact V : 3.290  
Prestroke solenoid  
Stroke mm : 8.00  
Del. quantity  
cm3/1000 strokes : 314.0

Tolerance  
cm3/1000 strokes : +- 4.0  
Check tolerance  
cm3/1000S. : +- 8.0

Rated speed rpm : 500  
Uact V : 2.900  
Prestroke solenoid  
Stroke mm : 9.20  
Del. quantity  
cm3/1000 strokes : 307.0  
Tolerance  
cm3/1000 strokes : +- 5.0  
Check tolerance  
cm3/1000S. : +- 9.0

Rated speed rpm : 500  
Uact V : 2.100  
Prestroke solenoid  
Stroke mm : 6.20  
Del. quantity  
cm3/1000 strokes : 176.0  
Tolerance  
cm3/1000 strokes : +- 4.0  
Check tolerance  
cm3/1000S. : +- 8.0

#### TEST POINT L1

Rated speed rpm : 300  
Uact V : 1.500  
Tolerance Volt : +- 0.060  
Check tolerance  
Volt : +- 0.080  
Prestroke solenoid  
Stroke mm : 7.20  
Del. quantity  
cm3/1000 strokes : 36.0  
Tolerance  
cm3/1000 strokes : +- 3.0  
Spreed  
Tolerance  
cm3/1000 strokes : +- 3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 2.450  
Prestroke solenoid  
Stroke mm : 7.00  
Del. quantity  
cm3/1000 strokes : 183.0  
Tolerance  
cm3/1000 strokes : +- 10.0  
Check tolerance  
cm3/1000S. : +- 14.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.03.96  
Test oil : ISO 4113

Combination No. : 0 402 796 205

Injection pump  
Pump designation : PES6H120/720/3LS1006  
: -1  
EP type number : 0 412 726 205

Governor  
Governor design. : RE33  
Governor no. : 0 421 890 365

Cust. part No. : 51.111103-7541

Customer-spec. information  
Customer : MAN  
Motor : D 2866 LUH 21  
Power kW : 257.0

## TEST BENCH REQUIREMENTS

Inlet line : 4-unten

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 135  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

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Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 10.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-  
: 3

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery blocking

Barrel no. : 6

(B) POSITIONER TESTING  
Warm-up time: 3 minutes at  
n=600 min-1, Uact = 2.5 V

# TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

## (C) INJECTION PUMP WITH POSITIONER

### TEST POINT V1

Rated speed rpm : 750  
Uact V : 3.350  
Prestroke solenoid  
Stroke mm : 10.00  
Del. quantity  
cm3/1000 strokes : 332.0  
Tolerance  
cm3/1000 strokes : +/- 1.0  
Check tolerance  
cm3/1000S. : +/- 4.0  
Speed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

### FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750  
Uact V : 1.450  
Prestroke solenoid  
Stroke mm : 10.00  
Del. quantity  
cm3/1000 strokes : 74.0  
Tolerance  
cm3/1000 strokes : +/- 4.0  
Check tolerance  
cm3/1000S. : +/- 8.0  
Speed  
Tolerance  
cm3/1000 strokes : 4.0  
Check tolerance  
cm3/1000S. : 8.0

Rated speed rpm : 1000  
Uact V : 3.290  
Prestroke solenoid  
Stroke mm : 8.00  
Del. quantity  
cm3/1000 strokes : 314.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

Rated speed rpm : 500  
Uact V : 2.900  
Prestroke solenoid  
Stroke mm : 9.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 307.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 9.0

Rated speed rpm : 500  
Uact V : 2.100  
Prestroke solenoid  
Stroke mm : 6.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 176.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

#### TEST POINT L1

Rated speed rpm : 300  
Uact V : 1.500  
Tolerance Volt : ± 0.060  
Check tolerance  
Volt : ± 0.080  
Prestroke solenoid  
Stroke mm : 7.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 36.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 2.450  
Prestroke solenoid  
Stroke mm : 7.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 183.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.03.96  
Test oil : ISO 4113

Combination No. : 0 402 796 822

Injection pump  
Pump designation : PES6P120A720/3LS7417  
EP type number : 0 412 726 960

Governor  
Governor design. : RE30  
Governor no. : 0 421 890 039

Cust. part No. : 51.11103-7480

Customer-spec. information  
Customer : MAN  
Motor : D 2866 LOH 25  
Power KW : 228.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

E06

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.45

Prestroke mm : 5.45  
Tolerance mm : ± 0.05  
Tolerance mm : ± 0.05

Check  
tolerance mm : ± 0.10  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 15.50

Rack travel in mm : 15.50  
Tolerance mm : ± 0.50  
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-  
: 3

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

Barrel no. : 6

---

### (B) POSITIONER TESTING

Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

#### TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min<sup>-1</sup>: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min<sup>-1</sup>: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min<sup>-1</sup>: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

---

### (C) INJECTION PUMP WITH POSITIONER

#### TEST POINT V1

Rated speed rpm : 750  
Uact V : 3.100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 271.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : +/- 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

#### FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000  
Uact V : 3.120  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 252.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : +/- 6.0

Rated speed rpm : 750  
Uact V : 1.470  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 5.0  
Check tolerance  
cm<sup>3</sup>/1000s. : +/- 9.0  
Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 500  
Uact V : 1.950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 176.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

TEST POINT L1

Rated speed rpm : 325  
Uact V : 1.470  
Tolerance Volt :  $\pm$  0.060  
Check tolerance  
Volt :  $\pm$  0.06u  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 03.04.96  
Test oil : ISO 4113  
  
Combination No. : 0 403 244 055  
  
Injection pump  
Pump designation : PES4MW100/320RS1521  
EP type number : 0 413 204 020  
  
Governor  
Governor design. : RQV400...1200MW147  
: -1  
Governor no. : 0 420 083 336  
  
Cust. part No. : 51.11103-7532

Customer-spec. information  
Customer : MAN  
Motor : D0824 LFL04  
Power KW : 81.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 419 992 198  
  
Inlet press. bar : 1.5  
  
Test nozzle holde  
assembly : 1 688 901 101  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 008  
  
Outside diameter : 8.0

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x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 12.30  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 4.90

Tolerance mm :  $\pm$  0.20

Del. quantity  
cm3/1000 strokes : 23.0

Tolerance  
cm3/1000 strokes :  $\pm$  2.0

Check tolerance  
cm3/1000S. :  $\pm$  4.5

Speed  
Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 400  
guide sleeve  
travel mm : 1.56  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1263  
guide sleeve  
travel mm : 9.98  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 868  
guide sleeve  
travel mm : 5.72  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 560  
guide sleeve  
travel mm : 3.27  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1500  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1350

Rack travel in mm : 10.00

E10

Tolerance mm :  $\pm$  2.70

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Aneroid pressure

hPa : 800

Del. quantity  
cm3/1000 strokes : 135.0

Tolerance  
cm3/1000 strokes :  $\pm$  1.0

Check tolerance  
cm3/1000S. :  $\pm$  4.0

Speed  
Tolerance  
cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 7.5

##### CONTROL LEVER

control lever  
position degree : 121.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 11.30  
Rated speed rpm : 1253  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1335

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1450

##### LOW IDLE

control lever  
position degree : 78.0  
tolerance degree :  $\pm$  4.0

##### Testing:

Rated speed rpm : 400  
rack travel mm : 4.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300

CRT mm min. :  $>$  7.00



---

#### TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1200  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 650  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 400  
rack travel mm : 1.80  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 130  
rack travel mm : 0.30  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 800  
Rated speed rpm : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 132.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : 800  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 141.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 93.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### BREAKAWAY

Rack travel in mm : 11.30  
Rated speed rpm : 1253  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

#### LOW IDLE

Rated speed rpm : 400  
rack travel mm : 4.90  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 083 454  
Injection pump  
Pump designation : PES6A100D320/3RS2691  
EP type number : 9 410 230 025

Governor  
Governor design. : RSV400...900A7C2209  
: -1R  
Governor no. : 9 420 083 232

Cust. part No. :

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 CT 8.3

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery differende

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 3.50

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 12.75  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 129.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000s. : ± 3.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.5

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : +- 0.35

governor spring  
pre-tension  
click setting x : 5.25

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 129.5

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

##### CONTROL LEVER

control lever  
position degree : 108.0  
tolerance degree : +- 4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 943  
rack travel mm : 11.70

Rated speed rpm : 979  
Tolerance 1/min : +- 2  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1100

Rated speed rpm : 944  
rack travel mm : 11.70

Rated speed rpm : 980  
Tolerance 1/min : +- 2  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1100

Rated speed rpm : 945  
rack travel mm : 11.70

Rated speed rpm : 981  
Tolerance 1/min : +- 2  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1100

Rated speed rpm : 946  
rack travel mm : 11.70

Rated speed rpm : 982  
Tolerance 1/min : +- 2  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1100

Rated speed rpm : 947  
rack travel mm : 11.70

Rated speed rpm : 983  
Tolerance 1/min : +- 2  
rack travel mm : 4.00

rack travel mm : 0.85

Tolerance mm	: +- 0.55
Rated speed rpm	: 1100
Rated speed rpm	: 948
rack travel mm	: 11.70
Rated speed rpm	: 984
Tolerance 1/min	: +- 2
rack travel mm	: 4.00
rack travel mm	: 0.85
Tolerance mm	: +- 0.55
Rated speed rpm	: 1100

#### LOW IDLE

control lever	
position degree	: 77.0
tolerance degree	: +- 4.0

Setting point w/out bumper spring

Rated speed rpm	: 400
rack travel mm	: 5.20

Testing:

Rated speed rpm	: 400
rack travel mm	: 5.70
Tolerance mm	: +- 0.10

rack travel mm	: 2.00
Rated speed rpm	: 440
Tolerance 1/min	: +- 30

Rated speed rpm	: 100
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CRT mm min.	: > 19.00
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#### TORQUE CONTROL

Rated speed rpm	: 900
rack travel mm	: 12.75
Tolerance mm	: +- 0.05

Rated speed rpm	: 550
rack travel mm	: 12.80
Tolerance mm	: +- 0.10

Rated speed rpm	: 400
rack travel mm	: 14.30
Tolerance mm	: +- 0.30

#### STARTING FUEL DELIVERY

Rated speed rpm	: 100
rack travel mm	: 20.00
Tolerance mm	: +- 1.00
Del. quantity	
cm3/1000 strokes	: 142.0
Tolerance	
cm3/1000 strokes	: +- 8.0
Check tolerance	
cm3/1000s.	: +- 11.0

#### LOW IDLE

Del. quantity	
cm3/1000 strokes	: 18.5
Tolerance	
cm3/1000 strokes	: +- 2.0
Check tolerance	
cm3/1000s.	: +- 4.5
Speed	
Tolerance	
cm3/1000 strokes	: 5.5
Check tolerance	
cm3/1000s.	: 9.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 083 454DF  
Injection pump  
Pump designation : PES6A100D320/3RS2691  
EP type number : 9 410 230 025

Governor  
Governor design. : RSV400...900A7C2209  
: -1R  
Governor no. : 9 420 083 232

Cust. part No. :

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 CT 8.3

## TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery difference

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 3.50

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 11.15  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 101.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5

Spreed	
Tolerance	
cm3/1000 strokes	: 3.5
Check tolerance	
cm3/1000s.	: 6.0
Del. quantity	
cm3/1000 strokes	: 18.5
Tolerance	
cm3/1000 strokes	: +- 2.0
Check tolerance	
cm3/1000s.	: +- 4.5
Spreed	
Tolerance	
cm3/1000 strokes	: 3.5
Check tolerance	
cm3/1000s.	: 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm	: 800
Rack travel in mm	: 0.65
Tolerance mm	: +- 0.35
governor spring pre-tension	
click setting x	: 5.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 900
Aneroid pressure hPa	: -
Del. quantity	
cm3/1000 strokes	: 101.5
Tolerance	
cm3/1000 strokes	: +- 0.5
Check tolerance	
cm3/1000s.	: +- 2.5
Spreed	
Tolerance	
cm3/1000 strokes	: 3.5
Check tolerance	
cm3/1000s.	: 6.0

CONTROL LEVER

control lever	
position degree	: 107.0
tolerance degree	: +- 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm	: 943
rack travel mm	: 10.10
Rated speed rpm	: 972
Tolerance 1/min	: +- 2
rack travel mm	: 4.00
rack travel mm	: 0.85
Tolerance mm	: +- 0.55
Rated speed rpm	: 1150
Rated speed rpm	: 944
rack travel mm	: 10.10
Rated speed rpm	: 973
Tolerance 1/min	: +- 2
rack travel mm	: 4.00
rack travel mm	: 0.85
Tolerance mm	: +- 0.55
Rated speed rpm	: 1150
Rated speed rpm	: 945
rack travel mm	: 10.10
Rated speed rpm	: 974
Tolerance 1/min	: +- 2
rack travel mm	: 4.00
rack travel mm	: 0.85
Tolerance mm	: +- 0.55
Rated speed rpm	: 1150
Rated speed rpm	: 946
rack travel mm	: 10.10
Rated speed rpm	: 975
Tolerance 1/min	: +- 2
rack travel mm	: 4.00
rack travel mm	: 0.85
Tolerance mm	: +- 0.55
Rated speed rpm	: 1150
Rated speed rpm	: 947
rack travel mm	: 10.10
Rated speed rpm	: 976
Tolerance 1/min	: +- 2
rack travel mm	: 4.00
rack travel mm	: 0.85

Tolerance mm :  $\pm$  0.55  
 Rated speed rpm : 1150  
  
 Rated speed rpm : 948  
 rack travel mm : 10.10  
  
 Rated speed rpm : 977  
 Tolerance 1/min :  $\pm$  2  
 rack travel mm : 4.00  
  
 rack travel mm : 0.85  
 Tolerance mm :  $\pm$  0.55  
 Rated speed rpm : 1150

---

#### LOW IDLE

control lever  
 position degree : 78.0  
 tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 400  
 rack travel mm : 5.50

Testing:

Rated speed rpm : 400  
 rack travel mm : 6.00  
 Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
 Rated speed rpm : 445  
 Tolerance 1/min :  $\pm$  30

Rated speed rpm : 100

CRT mm min. :  $>$  19.00

---

#### TORQUE CONTROL

Rated speed rpm : 900  
 rack travel mm : 11.15  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 550  
 rack travel mm : 11.20  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400  
 rack travel mm : 12.60  
 Tolerance mm :  $\pm$  0.30

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
 rack travel mm : 20.00  
 Tolerance mm :  $\pm$  1.00  
 Del. quantity  
 cm3/1000 strokes : 142.0  
 Tolerance  
 cm3/1000 strokes :  $\pm$  7.0  
 Check tolerance  
 cm3/1000S. :  $\pm$  10.0

---

#### LOW IDLE

Del. quantity  
 cm3/1000 strokes : 18.5  
 Tolerance  
 cm3/1000 strokes :  $\pm$  2.0  
 Check tolerance  
 cm3/1000S. :  $\pm$  4.5  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 3.5  
 Check tolerance  
 cm3/1000S. : 5.5

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 083 454DG  
Injection pump  
Pump designation : PES6A100D320/3RS2691  
EP type number : 9 410 230 025

Governor  
Governor design. : RSV400...900A7C2209  
: -1R  
Governor no. : 9 420 083 232

Cust. part No. :

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 CT 8.3

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Beginning of delivery differende

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 3.50

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 12.75  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 129.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5



Tolerance mm	:	± 0.55
Rated speed rpm	:	1100
Rated speed rpm	:	948
rack travel mm	:	11.70
Rated speed rpm	:	984
Tolerance 1/min	:	± 2
rack travel mm	:	4.00
rack travel mm	:	0.85
Tolerance mm	:	± 0.55
Rated speed rpm	:	1100

#### LOW IDLE

control lever	
position degree	: 78.0
tolerance degree	: ± 4.0

Setting point w/out bumper spring

Rated speed rpm	: 400
rack travel mm	: 5.50

Testing:

Rated speed rpm	: 400
rack travel mm	: 6.00
Tolerance mm	: ± 0.10

rack travel mm	: 2.00
Rated speed rpm	: 445
Tolerance 1/min	: ± 30

Rated speed rpm	: 100
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CRT mm min.	: > 19.00
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#### TORQUE CONTROL

Rated speed rpm	: 900
rack travel mm	: 12.75
Tolerance mm	: ± 0.05

Rated speed rpm	: 550
rack travel mm	: 12.80
Tolerance mm	: ± 0.10

Rated speed rpm	: 400
rack travel mm	: 14.30
Tolerance mm	: ± 0.30

#### STARTING FUEL DELIVERY

Rated speed rpm	: 100
rack travel mm	: 20.00
Tolerance mm	: ± 1.00
Del. quantity	
cm3/1000 strokes	: 142.0
Tolerance	
cm3/1000 strokes	: ± 7.0
Check tolerance	
cm3/1000S.	: ± 10.0

#### LOW IDLE

Del. quantity	
cm3/1000 strokes	: 18.5
Tolerance	
cm3/1000 strokes	: ± 2.0
Check tolerance	
cm3/1000S.	: ± 4.5
Speed	
Tolerance	
cm3/1000 strokes	: 3.5
Check tolerance	
cm3/1000S.	: 5.5

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 083 454ED  
Injection pump  
Pump designation : PES6A100D320/3RS2691  
EP type number : 9 410 230 025  
Governor  
Governor design. : RSV400...900A7C2209  
: -1R  
Governor no. : 9 420 083 232  
Cust. part No. : 3355522-VERSA043

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 CT 8.3  
Power KW : 135.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery differende

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 3.50

## BASIC SETTING

Rated speed rpm : 720  
Rack travel in mm : 13.25  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 142.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : ± 0.35

governor spring  
pre-tension  
click setting x : 4.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 720

Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 142.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

##### CONTROL LEVER

control lever  
position degree : 95.0  
tolerance degree : ± 4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 765  
rack travel mm : 12.20

Rated speed rpm : 802  
Tolerance 1/min : ± 2  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 900

Rated speed rpm : 766  
rack travel mm : 12.20

Rated speed rpm : 803  
Tolerance 1/min : ± 2  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 900

Rated speed rpm : 767  
rack travel mm : 12.20

Rated speed rpm : 804  
Tolerance 1/min : ± 2  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 900

Rated speed rpm : 768  
rack travel mm : 12.20

Rated speed rpm : 805  
Tolerance 1/min : ± 2  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 900

Rated speed rpm : 769  
rack travel mm : 12.20

Rated speed rpm : 806  
Tolerance 1/min : ± 2  
rack travel mm : 4.00

rack travel mm : 0.85

Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 770  
rack travel mm : 12.20  
Rated speed rpm : 807  
Tolerance 1/min :  $\pm$  2  
rack travel mm : 4.00  
rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

---

#### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 4.00

#### Testing:

Rated speed rpm : 400  
rack travel mm : 4.50  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 425  
Tolerance 1/min :  $\pm$  30

Rated speed rpm : 100  
CRT mm min. :  $>$  19.00

---

#### TORQUE CONTROL

Rated speed rpm : 720  
rack travel mm : 13.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 550  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400  
rack travel mm : 14.90  
Tolerance mm :  $\pm$  0.30

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm3/1000 strokes : 142.0  
Tolerance  
cm3/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm3/1000S. :  $\pm$  11.0

---

#### LOW IDLE

Del. quantity  
cm3/1000 strokes : 11.0  
Tolerance  
cm3/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm3/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm3/1000 strokes : 5.5  
Check tolerance  
cm3/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.03.96  
Test oil : ISO 4113  
Combination No. : 9 400 083 458  
Injection pump  
Pump designation : PES6A100D320/3RS2691  
: -2  
EP type number : 9 410 230 028  
Governor  
Governor design. : RQV350...1100AB1218  
: -1R  
Governor no. : 9 420 080 302  
Cust. part No. : 3354617

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 CT  
Power KW : 156.6

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery difference

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 3.50

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.65  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 118.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1150  
guide sleeve  
travel mm : 7.00  
Tolerance mm : + 0.10

Rated speed rpm : 1400  
guide sleeve  
travel mm : 8.95  
Tolerance mm : + 0.25

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.65  
Tolerance mm : + 0.25

Rated speed rpm : 650  
guide sleeve  
travel mm : 4.45  
Tolerance mm : + 0.25

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1315

Rack travel in mm : 16.50  
Tolerance mm : + 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 118.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

##### CONTROL LEVER

control lever  
position degree : 56.0  
tolerance degree : + 4.0

control lever  
position degree : 111.0  
tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 11.60  
Rated speed rpm : 1160  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1355  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1500

##### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree : + 4.0

control lever  
position degree : 16.0  
tolerance degree : + 4.0

##### Testing:

Rated speed rpm : 350  
rack travel mm : 5.90  
Tolerance mm : + 0.10



Rated speed rpm : 100  
 CRT mm min. : > 9.00  
 Rated speed rpm : 425

#### TORQUE CONTROL

Rated speed rpm : 1100  
 rack travel mm : 12.65  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
 rack travel mm : 13.65  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
 rack travel mm : 13.40  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 950  
 rack travel mm : 12.95  
 Tolerance mm :  $\pm$  0.15

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
 Pressure hPa : 800  
 rack travel mm : 13.65  
 Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
 Rated speed rpm : 500  
 rack travel mm : 11.95  
 Tolerance mm :  $\pm$  0.15

Rated speed rpm : 500

Pressure hPa : 500  
 rack travel mm : 12.30  
 Tolerance mm :  $\pm$  0.10

Pressure hPa : 600  
 rack travel mm : 13.25  
 Tolerance mm :  $\pm$  0.05

##### START CUT-OUT

Rated speed rpm : > 100  
 Rated speed rpm : < 270

Check  
 speed 1/min : > 80  
 Check  
 speed 1/min : < 290

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : 800  
 Rated speed rpm : 700  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 133.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
 Check tolerance  
 cm<sup>3</sup>/1000s. :  $\pm$  4.0

Aneroid pressure  
 hPa : 800  
 Rated speed rpm : 800  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 130.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
 Check tolerance  
 cm<sup>3</sup>/1000s. :  $\pm$  4.0

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 94.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm<sup>3</sup>/1000s. :  $\pm$  3.0

#### BREAKAWAY

Rack travel in mm : 11.60  
 Rated speed rpm : 1160  
 Tolerance 1/min :  $\pm$  5

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
 rack travel mm : 20.00  
 Tolerance mm :  $\pm$  1.00  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 170.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
 Check tolerance  
 cm<sup>3</sup>/1000s. :  $\pm$  11.0

---

LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 083 458EA  
Injection pump  
Pump designation : PES6A100D320/3RS2691  
: -2  
EP type number : 9 410 230 028  
Governor  
Governor design. : RQV350...1100AB1218  
: -1R  
Governor no. : 9 420 080 302  
Cust. part No. : 3354950-VERSA040

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 CT 8.3  
Power KW : 130.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery difference

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 3.50

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.75  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 102.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1150  
guide sleeve  
travel mm : 7.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1400  
guide sleeve  
travel mm : 8.95  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.65  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 650  
guide sleeve  
travel mm : 4.45  
Tolerance mm :  $\pm$  0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1315

Rack travel in mm : 16.50  
Tolerance mm :  $\pm$  1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 102.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

CONTROL LEVER

control lever  
position degree : 55.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 111.0  
tolerance degree :  $\pm$  4.0

RATED SPEED

rack travel mm : 10.70  
Rated speed rpm : 1160  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1335  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1500

LOW IDLE

control lever  
position degree : 71.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 15.0  
tolerance degree :  $\pm$  4.0

Testing:

Rated speed rpm : 350  
rack travel mm : 5.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100  
CRT mm min. : > 9.00  
Rated speed rpm : 425

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 12.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 870  
rack travel mm : 12.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 600  
rack travel mm : 12.05  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.15  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 500

Pressure hPa : 430  
rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 340  
rack travel mm : 10.65  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 270

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 290

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 600  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 102.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : 600  
Rated speed rpm : 870  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 104.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 67.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### BREAKAWAY

Rack travel in mm : 10.70  
Rated speed rpm : 1160  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

---

LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 083 459  
Injection pump  
Pump designation : PES6A95D120RS2822  
EP type number : 9 400 084 029  
Governor  
Governor design. : RQV350...1250AB1235  
: -2R  
Governor no. : 9 420 080 311  
Cust. part No. : 3355394

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 BT  
Power KW : 119.3

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

F05

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.80  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery difference

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 2.50

## BASIC SETTING

Rated speed rpm : 1250  
Rack travel in mm : 12.75  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 87.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spreed	
Tolerance	
cm3/1000 strokes	: 3.5
Check tolerance	
cm3/1000S.	: 8.0
Del. quantity	
cm3/1000 strokes	: 17.0
Tolerance	
cm3/1000 strokes	: +- 2.0
Check tolerance	
cm3/1000S.	: +- 4.5
Spreed	
Tolerance	
cm3/1000 strokes	: 5.5
Check tolerance	
cm3/1000S.	: 9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1300
guide sleeve	
travel mm	: 6.85
Tolerance mm	: +- 0.05
Rated speed rpm	: 1550
guide sleeve	
travel mm	: 8.55
Tolerance mm	: +- 0.25
Rated speed rpm	: 350
guide sleeve	
travel mm	: 1.45
Tolerance mm	: +- 0.25
Rated speed rpm	: 700
guide sleeve	
travel mm	: 4.25
Tolerance mm	: +- 0.25

GUIDE SLEEVE POSITION

Rated speed rpm	: 1530
Rack travel in mm	: 16.50
Tolerance mm	: +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1250
-----------------	--------

Aneroid pressure	
hPa	: 600
Del. quantity	
cm3/1000 strokes	: 87.0
Tolerance	
cm3/1000 strokes	: +- 1.0
Check tolerance	
cm3/1000S.	: +- 3.0
Spreed	
Tolerance	
cm3/1000 strokes	: 3.5
Check tolerance	
cm3/1000S.	: 8.0

CONTROL LEVER

control lever	
position degree	: 56.0
tolerance degree	: +- 4.0
control lever	
position degree	: 111.0
tolerance degree	: +- 4.0

RATED SPEED

rack travel mm	: 11.70
Rated speed rpm	: 1315
Tolerance 1/min	: +- 5
rack travel mm	: 4.00
Rated speed rpm	: 1560
Tolerance 1/min	: +- 15
rack travel mm	: 0.50
Tolerance mm	: +- 0.50
Rated speed rpm	: 1750

LOW IDLE

control lever	
position degree	: 69.0
tolerance degree	: +- 4.0
control lever	
position degree	: 14.0
tolerance degree	: +- 4.0

Testing:

Rated speed rpm	: 350
rack travel mm	: 6.00
Tolerance mm	: +- 0.10
Rated speed rpm	: 100



CRT mm min. : > 8.50

Rated speed rpm : 375

---

#### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 12.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 12.75  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 600  
rack travel mm : 12.75  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
  
Rated speed rpm : 500  
  
Pressure hPa : 410  
rack travel mm : 0.70  
Tolerance mm :  $\pm$  0.10  
  
Pressure hPa : 320  
rack travel mm : 0.15  
Tolerance mm :  $\pm$  0.05

---

##### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 270  
  
Check  
speed 1/min : > 80  
Check  
speed 1/min : < 290

---

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 600  
Rated speed rpm : 700

F07

Del. quantity  
cm<sup>3</sup>/1000 strokes : 81.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 65.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

##### BREAKAWAY

Rack travel in mm : 11.70  
Rated speed rpm : 1315  
Tolerance 1/min :  $\pm$  5

---

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 122.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

---

##### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.04.96  
Test oil : ISO 4113  
  
Combination No. : 9 400 083 459FA  
  
Injection pump  
Pump designation : PES6A95D120RS2822  
EP type number : 9 400 084 029  
  
Governor  
Governor design. : RQV350...1250AB1235  
: -2R  
Governor no. : 9 420 080 311  
  
Cust. part No. : 3356014-VERSA0-50

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 BT  
Power KW : 128.7

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

F09

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.80  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Beginning of delivery differende

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 2.50

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 13.75  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 96.5

Tolerance  
cm3/1000 strokes : ± 1.0

Check tolerance  
cm3/1000s. : ± 3.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1300  
guide sleeve  
travel mm : 6.85  
Tolerance mm : ± 0.05

Rated speed rpm : 1550  
guide sleeve  
travel mm : 8.55  
Tolerance mm : ± 0.25

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.45  
Tolerance mm : ± 0.25

Rated speed rpm : 700  
guide sleeve  
travel mm : 4.25  
Tolerance mm : ± 0.25

---

GUIDE SLEEVE POSITION

Rated speed rpm : 1530  
Rack travel in mm : 16.50  
Tolerance mm : ± 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300

F10

Aneroid pressure  
hPa : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 96.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

CONTROL LEVER

control lever  
position degree : 57.0  
tolerance degree : ± 4.0

control lever  
position degree : 112.0  
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.70  
Rated speed rpm : 1345  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1580  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1800

---

LOW IDLE

control lever  
position degree : 69.0  
tolerance degree : ± 4.0

control lever  
position degree : 13.0  
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350  
rack travel mm : 6.20  
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 8.50

Rated speed rpm : 375

---

#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 13.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 13.75  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 800  
rack travel mm : 13.75  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 540  
rack travel mm : 1.55  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 350  
rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.10

---

##### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 270

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 290

---

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 800  
Rated speed rpm : 800

Del. quantity  
cm<sup>3</sup>/1000 strokes : 95.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 65.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

##### BREAKAWAY

Rack travel in mm : 12.70  
Rated speed rpm : 1345  
Tolerance 1/min :  $\pm$  5

---

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 127.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

---

##### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 224  
Injection pump  
Pump designation : PES6A90D320RS2605  
EP type number : 9 400 083 078  
Governor  
Governor design. : RSV350...1050A1C2029  
: -2R  
Governor no. : 9 420 083 266  
Cust. part No. :

Customer-spec. information  
Customer : MWM  
Motor : TD 229-6

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 003

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery difference

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 4.50

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 8.25  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 53.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5

---

Spreed  
Tolerance  
cm3/1000 strokes : 3.0

---

Check tolerance  
cm3/1000S. : 7.0

Del. quantity  
cm3/1000 strokes : 9.5  
Tolerance  
cm3/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm3/1000S. :  $\pm$  4.0

Spreed  
Tolerance  
cm3/1000 strokes : 4.5  
Check tolerance  
cm3/1000S. : 7.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

Rated speed rpm : 800  
Rack travel in mm : 0.65  
Tolerance mm :  $\pm$  0.35  
governor spring  
pre-tension  
click setting x : 6.25

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : -  
Del. quantity  
cm3/1000 strokes : 53.5  
Tolerance  
cm3/1000 strokes :  $\pm$  0.5  
Check tolerance  
cm3/1000S. :  $\pm$  2.5  
Spreed  
Tolerance  
cm3/1000 strokes : 3.0  
Check tolerance  
cm3/1000S. : 7.0

---

CONTROL LEVER

control lever  
position degree : 62.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 112.0  
tolerance degree :  $\pm$  4.0

RATED SPEED

rack travel mm : 7.20  
Rated speed rpm : 1075  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1105  
Tolerance 1/min :  $\pm$  15

rack travel mm : 1.00  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1250

---

LOW IDLE

control lever  
position degree : 83.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 33.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 6.00

Testing:

Rated speed rpm : 350  
rack travel mm : 6.50  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 555  
Tolerance 1/min :  $\pm$  30

Rated speed rpm : 100  
CRT mm min. :  $>$  19.00

---

TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 8.25



Tolerance mm :  $\pm$  0.05  
 Rated speed rpm : 500  
 rack travel mm : 9.05  
 Tolerance mm :  $\pm$  0.05  
  
 Rated speed rpm : 700  
 rack travel mm : 9.00  
 Tolerance mm :  $\pm$  0.10  
  
 Rated speed rpm : 875  
 rack travel mm : 8.55  
 Tolerance mm :  $\pm$  0.15

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 48.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  3.5  
  
 Aneroid pressure  
 hPa : -  
 Rated speed rpm : 700  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 52.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  3.5

---

#### BREAKAWAY

Rack travel in mm : 7.20  
 Rated speed rpm : 1075  
 Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
 rack travel mm : 20.00  
 Tolerance mm :  $\pm$  1.00

---

#### LOW IDLE

F15

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 9.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.0  
 Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 7.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.04.96  
Test oil : ISO 4113

Combination No. : 9 400 085 239

Injection pump  
Pump designation : PES6A90D320RS2701  
EP type number : 9 400 083 094

Governor  
Governor design. : RSV350...1150A2C2097  
: -1R  
Governor no. : 9 420 083 267

Cust. part No. :

Customer-spec. information  
Customer : MWM  
Motor : TD229-6  
Power KW : 106.7

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 003

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.70  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Beginning of delivery difference

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 4.50

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 10.85  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 81.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5

Spreed	
Tolerance	
cm3/1000 strokes	: 3.0
Check tolerance	
cm3/1000S.	: 7.0
Del. quantity	
cm3/1000 strokes	: 11.5
Tolerance	
cm3/1000 strokes	: +- 2.0
Check tolerance	
cm3/1000S.	: +- 4.0
Spreed	
Tolerance	
cm3/1000 strokes	: 4.5
Check tolerance	
cm3/1000S.	: 7.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm	: 800
Rack travel in mm	: 0.65
Tolerance mm	: +- 0.35
governor spring	
pre-tension	
click setting x	: 3.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1150
Aneroid pressure	
hPa	: -
Del. quantity	
cm3/1000 strokes	: 81.5
Tolerance	
cm3/1000 strokes	: +- 0.5
Check tolerance	
cm3/1000S.	: +- 2.5
Spreed	
Tolerance	
cm3/1000 strokes	: 3.0
Check tolerance	
cm3/1000S.	: 7.0

##### CONTROL LEVER

control lever	
position degree	: 95.0
tolerance degree	: +- 4.0

##### RATED SPEED

rack travel mm	: 9.80
Rated speed rpm	: 1200
Tolerance 1/min	: +- 5

rack travel mm	: 4.00
Rated speed rpm	: 1255
Tolerance 1/min	: +- 15

rack travel mm	: 1.00
Tolerance mm	: +- 0.70
Rated speed rpm	: 1400

##### LOW IDLE

control lever	
position degree	: 70.0
tolerance degree	: +- 4.0

##### Setting point w/out bumper spring

Rated speed rpm	: 350
rack travel mm	: 5.50

##### Testing:

Rated speed rpm	: 350
rack travel mm	: 6.00
Tolerance mm	: +- 0.10

rack travel mm	: 2.00
Rated speed rpm	: 590
Tolerance 1/min	: +- 30

Rated speed rpm	: 100
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CRT mm min.	: > 19.00
-------------	-----------

##### TORQUE CONTROL

Rated speed rpm	: 1150
rack travel mm	: 10.85
Tolerance mm	: +- 0.05

Rated speed rpm	: 500
rack travel mm	: 11.45
Tolerance mm	: +- 0.05

Rated speed rpm	: 750
rack travel mm	: 11.25

Tolerance mm :  $\pm$  0.05  
Rated speed rpm : 850  
rack travel mm : 11.05  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 77.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 79.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

---

#### BREAKAWAY

Rack travel in mm : 9.80  
Rated speed rpm : 1200  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 147.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 243  
Injection pump  
Pump designation : PES4A80D32ORS1282-1  
EP type number : 9 400 083 097

Governor  
Governor design. : RS350/1500A2C2073  
: -2R  
Governor no. : 9 420 083 269

Cust. part No. :

Customer-spec. information  
Customer : MWM  
Motor : D 229-4

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 003

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.70  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1-3-4-2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Beginning of delivery difference

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference °CS : 4.50

## BASIC SETTING

Rated speed rpm : 1500

Rack travel in mm : 9.25  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 58.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : + 2.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 9.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.5

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65

Tolerance mm : + 0.35

governor spring  
pre-tension  
click setting x : 5.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1500

Aneroid pressure

hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 58.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : + 2.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

CONTROL LEVER

F20

control lever  
position degree : 117.0  
tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 8.20

Rated speed rpm : 1585

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1640

Tolerance 1/min : + 15

rack travel mm : 1.00

Tolerance mm : + 0.70

Rated speed rpm : 1800

##### LOW IDLE

control lever  
position degree : 60.0  
tolerance degree : + 4.0

##### Testing:

Rated speed rpm : 350

rack travel mm : 6.10

Tolerance mm : + 0.10

rack travel mm : 4.00

Rated speed rpm : 460

Tolerance 1/min : + 30

Rated speed rpm : 250

CRT mm min. : > 6.80

Rated speed rpm : 550

CRT mm max. : < 3.20

##### TORQUE CONTROL

Rated speed rpm : 1500

rack travel mm : 9.25

Tolerance mm : + 0.05

Rated speed rpm : 500

rack travel mm : 10.65

Tolerance mm : + 0.05

Rated speed rpm : 900

rack travel mm : 10.30

Tolerance mm : + 0.10

Rated speed rpm : 1200  
rack travel mm : 9.65  
Tolerance mm :  $\pm$  0.15

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 59.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 64.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### BREAKAWAY

Rack travel in mm : 8.20  
Rated speed rpm : 1585  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 9.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5  
Speed

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.09.95  
Test oil : ISO 4113  
Combination No. : 9 400 085 254  
Injection pump  
Pump designation : PES6A90D410RS2293  
EP type number : 0 410 896 031  
Governor  
Governor design. : RSV500...900A0B2211  
: -1L  
Governor no. : 9 420 083 204

Cust. part No. :

Customer-spec. information  
Customer : MBB  
Motor : OM 352 (A)

## TEST BENCH REQUIREMENTS

Inlet line : 2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.20  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## BASIC SETTING

Rated speed rpm : 880

Rack travel in mm : 10.05  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 57.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000s. : ± 2.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000s. : 5.0



Del. quantity  
 cm<sup>3</sup>/1000 strokes : 12.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 4.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 2.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 4.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800  
 Rack travel in mm : 0.65  
 Tolerance mm : ± 0.35

governor spring  
 pre-tension  
 click setting x : 4.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 880  
 Aneroid pressure  
 hPa : -  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 57.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 0.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 2.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 5.0

##### CONTROL LEVER

control lever  
 position degree : 87.0  
 tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 9.00  
 Rated speed rpm : 908

Tolerance 1/min : ± 3  
 rack travel mm : 4.00  
 Rated speed rpm : 953  
 Tolerance 1/min : ± 3  
 rack travel mm : 1.00  
 Tolerance mm : ± 0.70  
 Rated speed rpm : 1100

##### LOW IDLE

control lever  
 position degree : 75.0  
 tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 500  
 rack travel mm : 6.00

##### Testing:

Rated speed rpm : 500  
 rack travel mm : 6.50  
 Tolerance mm : ± 0.10

rack travel mm : 2.00  
 Rated speed rpm : 565  
 Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 880  
 rack travel mm : 10.05  
 Tolerance mm : ± 0.05

Rated speed rpm : 500  
 rack travel mm : 10.10  
 Tolerance mm : ± 0.10

Rated speed rpm : 400  
 rack travel mm : 11.50  
 Tolerance mm : ± 0.10

##### BREAKAWAY

Rack travel in mm : 9.00  
Rated speed rpm : 908  
Tolerance 1/min :  $\pm$  3

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.50  
Tolerance mm :  $\pm$  0.30

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.04.96  
Test oil : ISO 4113

Combination No. : 9 400 085 255

Injection pump  
Pump designation : PES5A80D410RS2526  
EP type number : 9 400 093 007

Governor  
Governor design. : RS325/1400AQC2212L  
Governor no. : 9 420 083 295

Cust. part No. :

## Customer-spec. information

Customer : DEUTZ ARGENTINA  
Motor : F5L913

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 003

Outside diameter : 6.0

x inside diameter : 2.0

x Length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 1.95  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

## BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 11.55  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 66.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0

Tolerance  
 cm3/1000 strokes :  $\pm$  1.5  
 Check tolerance  
 cm3/1000S. :  $\pm$  3.5  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 4.0  
 Check tolerance  
 cm3/1000S. : 6.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800  
 Rack travel in mm : 0.65  
 Tolerance mm :  $\pm$  0.35  
 governor spring  
 pre-tension  
 click setting x : 4.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400  
 Aneroid pressure  
 hPa : -  
 Del. quantity  
 cm3/1000 strokes : 66.0  
 Tolerance  
 cm3/1000 strokes :  $\pm$  0.5  
 Check tolerance  
 cm3/1000S. :  $\pm$  2.0  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 2.5  
 Check tolerance  
 cm3/1000S. : 4.0

##### CONTROL LEVER

control lever  
 position degree : 113.0  
 tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 10.50  
 Rated speed rpm : 1445  
 Tolerance 1/min :  $\pm$  5  
 rack travel mm : 4.00

Rated speed rpm : 1515  
 Tolerance 1/min :  $\pm$  15  
 rack travel mm : 1.00  
 Tolerance mm :  $\pm$  0.70  
 Rated speed rpm : 1650

##### LOW IDLE

control lever  
 position degree : 70.0  
 tolerance degree :  $\pm$  4.0

##### Testing:

Rated speed rpm : 325  
 rack travel mm : 8.50  
 Tolerance mm :  $\pm$  0.10

rack travel mm : 6.00  
 Rated speed rpm : 420  
 Tolerance 1/min :  $\pm$  30

Rated speed rpm : 280

CRT mm min. : > 8.80

Rated speed rpm : 550

CRT mm max. : < 4.40

##### TORQUE CONTROL

Rated speed rpm : 1400  
 rack travel mm : 11.55  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
 rack travel mm : 12.25  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1100  
 rack travel mm : 11.95  
 Tolerance mm :  $\pm$  0.15

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 500  
 Del. quantity  
 cm3/1000 strokes : 56.5

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 63.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0

---

#### BREAKAWAY

Rack travel in mm : 10.50  
Rated speed rpm : 1445  
Tolerance 1/min : +- 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm : +- 1.00

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 301  
Injection pump  
Pump designation : PES6A85D410RS2415  
EP type number : 0 410 886 907  
Governor  
Governor design. : RQV350...1325AB1234  
: -1L  
Governor no. : 9 420 080 259  
Cust. part No. :

Customer-spec. information  
Customer : DEUTZ-ARGENTINA  
Motor : BF 6L 913  
Power KW : 116.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 32.0  
Tolerance bar : ± 1.0

Prestroke mm : 1.95  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## BASIC SETTING

Rated speed rpm : 1325

Rack travel in mm : 11.15  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 77.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 16.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 4.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 7.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1400  
 guide sleeve  
 travel mm : 8.90  
 Tolerance mm : ± 0.10

Rated speed rpm : 900  
 guide sleeve  
 travel mm : 4.95  
 Tolerance mm : ± 0.25

Rated speed rpm : 300  
 guide sleeve  
 travel mm : 0.75  
 Tolerance mm : ± 0.25

Rated speed rpm : 600  
 guide sleeve  
 travel mm : 2.85  
 Tolerance mm : ± 0.25

Rated speed rpm : 1200  
 guide sleeve  
 travel mm : 6.95  
 Tolerance mm : ± 0.25

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1350

Rack travel in mm : 16.50  
 Tolerance mm : ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1325  
 Aneroid pressure  
 hPa : -

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 77.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 0.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 2.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 7.0

##### CONTROL LEVER

control lever  
 position degree : 61.0  
 tolerance degree : ± 4.0

control lever  
 position degree : 116.0  
 tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 10.10  
 Rated speed rpm : 1370  
 Tolerance 1/min : ± 5

rack travel mm : 4.00  
 Rated speed rpm : 1470  
 Tolerance 1/min : ± 15

rack travel mm : 0.50  
 Tolerance mm : ± 0.50  
 Rated speed rpm : 1600

##### LOW IDLE

control lever  
 position degree : 70.0  
 tolerance degree : ± 4.0

control lever  
 position degree : 15.0  
 tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 350  
 rack travel mm : 8.00  
 Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 9.00

Rated speed rpm : 450

---

#### TORQUE CONTROL

Rated speed rpm : 1325  
rack travel mm : 11.15  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 12.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 1100  
rack travel mm : 11.60  
Tolerance mm :  $\pm$  0.10

---

#### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 300

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 320

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 75.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  3.5

Aneroid pressure  
hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 79.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  3.5

Aneroid pressure  
hPa : -  
Rated speed rpm : 1100

G02

Del. quantity  
cm<sup>3</sup>/1000 strokes : 77.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  3.5

---

#### BREAKAWAY

Rack travel in mm : 10.10  
Rated speed rpm : 1370  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 7.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 302  
Injection pump  
Pump designation : PES6A90D32ORS2767  
EP type number : 9 400 084 017  
Governor  
Governor design. : RSV300...1400A0C2207  
: -2R  
Governor no. : 9 420 083 299  
Cust. part No. : 905200569079

## Customer-spec. information

Customer : MWM  
Motor : TBD 229-6 EC  
Power KW : 185.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

G03

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Beginning of delivery difference

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 3.50

## BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 14.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : ± 0.35

governor spring  
pre-tension  
click setting x : 4.25

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

##### CONTROL LEVER

control lever  
position degree : 116.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 13.30  
Rated speed rpm : 1445  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1555  
Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1700

---

##### LOW IDLE

control lever  
position degree : 80.0  
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 300  
rack travel mm : 7.50

##### Testing:

Rated speed rpm : 300  
rack travel mm : 8.00  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 485  
Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.00

---

##### TORQUE CONTROL

Rated speed rpm : 1400  
rack travel mm : 14.35  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
rack travel mm : 14.40  
Tolerance mm : ± 0.10

Rated speed rpm : 350  
rack travel mm : 15.80

Tolerance mm :  $\pm$  0.30

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 109.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

---

#### BREAKAWAY

Rack travel in mm : 13.30  
Rated speed rpm : 1445  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 306  
Injection pump  
Pump designation : PES6A90D410RS2596  
EP type number : 0 410 896 073  
Governor  
Governor design. : RQV300...1400AB1066  
: -7L  
Governor no. : 9 420 080 267  
Cust. part No. : 0180742402

Customer-spec. information  
Customer : MBB  
Motor : OM352A  
Power KW : 121.4

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

G06

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300

## BASIC SETTING

Rated speed rpm : 1400  
Rack travel in mm : 12.45  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 78.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.05  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1500  
guide sleeve  
travel mm : 8.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
guide sleeve  
travel mm : 2.55  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 750  
guide sleeve  
travel mm : 4.20  
Tolerance mm :  $\pm$  0.10

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1500

Rack travel in mm : 16.50  
Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400  
Aneroid pressure  
hPa : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 78.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  2.5

G07

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

##### CONTROL LEVER

control lever  
position degree : 64.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 114.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 11.50  
Rated speed rpm : 1445  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1590  
Tolerance 1/min :  $\pm$  20

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1750

##### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 21.0  
tolerance degree :  $\pm$  4.0

##### Testing:

Rated speed rpm : 300  
rack travel mm : 9.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. : > 10.30

Rated speed rpm : 620

##### TORQUE CONTROL

Rated speed rpm : 1400  
rack travel mm : 12.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 13.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 700  
rack travel mm : 13.25  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 12.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

Pressure hPa : 375  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 465  
rack travel mm : 12.95  
Tolerance mm :  $\pm$  0.05

---

##### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 700  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 66.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

Aneroid pressure  
hPa : 700  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 57.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  2.5

---

##### BREAKAWAY

Rack travel in mm : 11.50  
Rated speed rpm : 1445  
Tolerance 1/min :  $\pm$  5

---

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 16.00  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

##### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed

Tolerance  
cm3/1000 strokes : 4.5  
Check tolerance  
cm3/1000S. : 7.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.04.96  
Test oil : ISO 4113

Combination No. : 9 400 085 307

Injection pump  
Pump designation : PES4A95D410RS2774  
EP type number : 9 400 084 019

Governor  
Governor design. : RQV300...1300AB1228  
: -1L  
Governor no. : 9 420 080 268

Cust. part No. :

Customer-spec. information  
Customer : MBB  
Motor : OM 364 A  
Power KW : 85.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 10.65  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 91.0

Tolerance  
cm3/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : ± 3.0

Spread  
Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 8.0



Del. quantity	
cm <sup>3</sup> /1000 strokes	: 10.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 2.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.5
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.5
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0

# (B) SETTING OF INJECTION PUMP WITH GOVERNOR

## GUIDE SLEEVE TRAVEL

Rated speed rpm	: 300
guide sleeve	
travel mm	: 1.05
Tolerance mm	: ± 0.25

Rated speed rpm	: 1500
guide sleeve	
travel mm	: 8.55
Tolerance mm	: ± 0.05

Rated speed rpm	: 500
guide sleeve	
travel mm	: 2.55
Tolerance mm	: ± 0.25

Rated speed rpm	: 750
guide sleeve	
travel mm	: 4.20
Tolerance mm	: ± 0.10

## GUIDE SLEEVE POSITION

Rated speed rpm	: 1500
-----------------	--------

Rack travel in mm	: 16.50
Tolerance mm	: ± 1.30

## FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1300
Aneroid pressure	
hPa	: 700
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 91.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 3.0
Spreed	

Tolerance	
cm <sup>3</sup> /1000 strokes	: 3.5
Check tolerance	
cm <sup>3</sup> /1000S.	: 8.0

## CONTROL LEVER

control lever	
position degree	: 59.0
tolerance degree	: ± 4.0

control lever	
position degree	: 108.0
tolerance degree	: ± 4.0

## RATED SPEED

rack travel mm	: 9.60
Rated speed rpm	: 1365
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1490
Tolerance 1/min	: ± 15

rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1640

## LOW IDLE

control lever	
position degree	: 68.0
tolerance degree	: ± 4.0

control lever	
position degree	: 19.0
tolerance degree	: ± 4.0

## Testing:

Rated speed rpm	: 300
rack travel mm	: 7.00
Tolerance mm	: ± 0.10

Rated speed rpm	: 100
-----------------	-------

CRT mm min.	: > 8.00
-------------	----------

Rated speed rpm	: 485
-----------------	-------

## TORQUE CONTROL

Rated speed rpm	: 1300
-----------------	--------

rack travel mm : 10.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 11.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 700  
rack travel mm : 11.05  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 280  
rack travel mm : 0.45  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 410  
rack travel mm : 1.40  
Tolerance mm :  $\pm$  0.10

---

##### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 700  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 86.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 53.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

##### BREAKAWAY

Rack travel in mm : 9.60  
Rated speed rpm : 1365  
Tolerance 1/min :  $\pm$  5

---

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 13.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 84.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  6.0

---

##### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 10.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 311  
Injection pump  
Pump designation : PES6A90D320RS2718  
EP type number : 9 400 084 003  
Governor  
Governor design. : RSV350...1250A0C1108  
: -2R  
Governor no. : 9 420 083 272  
Cust. part No. :

Customer-spec. information  
Customer : MWM  
Motor : TD 229 EC-06  
Power KW : 121.5

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : + 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0  
Prestroke mm : 2.75  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10  
Rack travel in mm : 10.50  
Tolerance mm : + 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery difference

and maximum rack  
travel : 10.50  
Tolerance mm : + 1.50  
Difference ° CS : 3.50

## BASIC SETTING

Rated speed rpm : 1200  
Rack travel in mm : 10.85  
Tolerance mm : + 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 89.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 2.5

Spreed	
Tolerance	
cm3/1000 strokes :	3.0

Check tolerance	
cm3/1000S. :	7.0

Del. quantity	
cm3/1000 strokes :	11.0

Tolerance	
cm3/1000 strokes :	+ 2.0

Check tolerance	
cm3/1000S. :	+ 4.0

Spreed	
Tolerance	

cm3/1000 strokes :	4.5
--------------------	-----

Check tolerance	
cm3/1000S. :	7.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm :	800
-------------------	-----

Rack travel in mm :	0.65
---------------------	------

Tolerance mm :	+ 0.35
----------------	--------

governor spring

pre-tension

click setting x :	4.50
-------------------	------

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1200
-------------------	------

Aneroid pressure

hPa :	-
-------	---

Del. quantity

cm3/1000 strokes :	89.0
--------------------	------

Tolerance

cm3/1000 strokes :	+ 0.5
--------------------	-------

Check tolerance

cm3/1000S. :	+ 2.5
--------------	-------

Spreed

Tolerance

cm3/1000 strokes :	3.0
--------------------	-----

Check tolerance

cm3/1000S. :	7.0
--------------	-----

##### CONTROL LEVER

control lever

position degree :	109.0
-------------------	-------

tolerance degree :	+ 4.0
--------------------	-------

##### RATED SPEED

rack travel mm :	9.80
------------------	------

Rated speed rpm :	1295
-------------------	------

Tolerance 1/min :	+ 5
-------------------	-----

rack travel mm :	4.00
------------------	------

Rated speed rpm :	1375
-------------------	------

Tolerance 1/min :	+ 15
-------------------	------

rack travel mm :	0.85
------------------	------

Tolerance mm :	+ 0.55
----------------	--------

Rated speed rpm :	1450
-------------------	------

##### LOW IDLE

control lever

position degree :	79.0
-------------------	------

tolerance degree :	+ 4.0
--------------------	-------

Setting point w/out bumper spring

Rated speed rpm :	350
-------------------	-----

rack travel mm :	4.70
------------------	------

Testing:

Rated speed rpm :	350
-------------------	-----

rack travel mm :	5.20
------------------	------

Tolerance mm :	+ 0.10
----------------	--------

rack travel mm :	2.00
------------------	------

Rated speed rpm :	425
-------------------	-----

Tolerance 1/min :	+ 30
-------------------	------

Rated speed rpm :	100
-------------------	-----

CRT mm min. :	> 19.00
---------------	---------

##### TORQUE CONTROL

Rated speed rpm :	1200
-------------------	------

rack travel mm :	10.85
------------------	-------

Tolerance mm :	+ 0.05
----------------	--------

Rated speed rpm :	500
-------------------	-----

rack travel mm :	10.90
------------------	-------

Tolerance mm :	+ 0.10
----------------	--------

Rated speed rpm :	400
-------------------	-----

rack travel mm :	12.30
------------------	-------

Tolerance mm :  $\pm$  0.30

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 80.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 9.80  
Rated speed rpm : 1295  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 327  
Injection pump  
Pump designation : PES6A95D410RS2772  
EP type number : 9 400 084 018  
Governor  
Governor design. : RSV350...1250A0C1150  
: -4L  
Governor no. : 9 420 083 256  
Cust. part No. :

Customer-spec. information  
Customer : MBB  
Motor : OM 366 A  
Power KW : 121.0

## TEST BENCH REQUIREMENTS

Inlet Line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 9.65  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 82.0

Tolerance  
cm3/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : ± 3.0

Speed  
Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 8.0

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 15.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 5.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800  
 Rack travel in mm : 0.65  
 Tolerance mm : ± 0.35

governor spring  
 pre-tension  
 click setting x : 3.25

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
 Aneroid pressure  
 hPa : -  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 82.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 3.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 8.0

##### CONTROL LEVER

control lever  
 position degree : 103.0  
 tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 8.60  
 Rated speed rpm : 1295

Tolerance 1/min : ± 5  
 rack travel mm : 4.00  
 Rated speed rpm : 1340  
 Tolerance 1/min : ± 15  
 rack travel mm : 1.00  
 Tolerance mm : ± 0.70  
 Rated speed rpm : 1500

##### LOW IDLE

control lever  
 position degree : 75.0  
 tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 350  
 rack travel mm : 6.30

##### Testing:

Rated speed rpm : 350  
 rack travel mm : 6.80  
 Tolerance mm : ± 0.10

rack travel mm : 2.00  
 Rated speed rpm : 450  
 Tolerance 1/min : ± 30

Rated speed rpm : 100  
 CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 1250  
 rack travel mm : 9.65  
 Tolerance mm : ± 0.05

Rated speed rpm : 800  
 rack travel mm : 9.65  
 Tolerance mm : ± 0.05

Rated speed rpm : 500  
 rack travel mm : 9.70  
 Tolerance mm : ± 0.10

Rated speed rpm : 400  
 rack travel mm : 11.10  
 Tolerance mm : ± 0.30

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 74.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 8.60  
Rated speed rpm : 1295  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  13.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.04.96  
Test oil : ISO 4113

Combination No. : 9 400 085 329

Injection pump  
Pump designation : PES6A95D410RS2772  
EP type number : 9 400 084 018

Governor  
Governor design. : RQV300...1300AB1256L  
Governor no. : 9 420 080 297

Cust. part No. :

Customer-spec. information  
Customer : MBB  
Motor : OM 366 LA  
Power KW : 150.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 006

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 11.15  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 99.0

Tolerance  
cm3/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : ± 3.0

Spread  
Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 6.0

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 11.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 5.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
 guide sleeve  
 travel mm : 1.05  
 Tolerance mm : ± 0.25

Rated speed rpm : 1500  
 guide sleeve  
 travel mm : 8.55  
 Tolerance mm : ± 0.05

Rated speed rpm : 500  
 guide sleeve  
 travel mm : 2.55  
 Tolerance mm : ± 0.25

Rated speed rpm : 750  
 guide sleeve  
 travel mm : 4.20  
 Tolerance mm : ± 0.10

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1500

Rack travel in mm : 16.50  
 Tolerance mm : ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
 Aneroid pressure  
 hPa : 700  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 99.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 3.0

Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0

##### CONTROL LEVER

control lever  
 position degree : 60.0  
 tolerance degree : ± 4.0

control lever  
 position degree : 118.0  
 tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 10.10  
 Rated speed rpm : 1365  
 Tolerance 1/min : ± 5

rack travel mm : 4.00  
 Rated speed rpm : 1505  
 Tolerance 1/min : ± 15

rack travel mm : 0.50  
 Tolerance mm : ± 0.50  
 Rated speed rpm : 1650

##### LOW IDLE

control lever  
 position degree : 74.0  
 tolerance degree : ± 4.0

control lever  
 position degree : 16.0  
 tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 300  
 rack travel mm : 7.00  
 Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 8.00

Rated speed rpm : 485

##### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 11.15  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 11.15  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 700  
rack travel mm : 11.15  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.55  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 500

Pressure hPa : 300  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 450  
rack travel mm : 10.65  
Tolerance mm :  $\pm$  0.05

---

##### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  220

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  240

---

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 700  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 87.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 60.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

##### BREAKAWAY

Rack travel in mm : 10.10  
Rated speed rpm : 1365  
Tolerance 1/min :  $\pm$  5

---

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 84.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  6.0

---

##### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 334  
Injection pump  
Pump designation : PES6A100D320/3RS2691  
: -2  
EP type number : 9 410 230 028  
Governor  
Governor design. : RQV350...1100AB1218  
: -2R  
Governor no. : 9 420 080 304  
Cust. part No. : 3352552

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 CTA - 8.3 L  
Power KW : 179.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery differende

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 3.50

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.65  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 128.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1100  
guide sleeve  
travel mm : 8.45  
Tolerance mm : ± 0.05

Rated speed rpm : 800  
guide sleeve  
travel mm : 5.75  
Tolerance mm : ± 0.15

Rated speed rpm : 350  
guide sleeve  
travel mm : 2.40  
Tolerance mm : ± 0.20

Rated speed rpm : 500  
guide sleeve  
travel mm : 4.05  
Tolerance mm : ± 0.15

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 128.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

##### CONTROL LEVER

control lever  
position degree : 63.0  
tolerance degree : ± 4.0

control lever  
position degree : 118.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 12.60  
Rated speed rpm : 1145  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1260  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1400

##### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree : ± 4.0

control lever  
position degree : 17.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 350  
rack travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 9.00

Rated speed rpm : 425

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 13.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 14.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 900  
rack travel mm : 14.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 14.45  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 640  
rack travel mm : 13.85  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 440  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.10

---

##### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  270

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  290

---

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 141.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : 900  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 137.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 82.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### BREAKAWAY

Rack travel in mm : 12.60  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 172.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.04.96  
Test oil : ISO 4113  
  
Combination No. : 9 400 085 339  
  
Injection pump  
Pump designation : PES4A95D41ORS2774  
EP type number : 9 400 084 019  
  
Governor  
Governor design. : RQV300...1300AB1066  
                  : -11L  
Governor no. : 9 420 080 309  
  
Cust. part No. : 0200742602

Customer-spec. information  
Customer : MBB  
Motor : OM 364 LA  
Power KW : 100.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 419 992 198  
  
Inlet press. bar : 1.5  
  
Test nozzle holde  
assembly : 0 681 343 009  
  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
  
Test Lines : 1 680 750 015  
  
Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 3.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
  
Firing order : 1- 3- 4- 2  
  
Phasing : 0-90-180-270

## BASIC SETTING

Rated speed rpm : 1300  
  
Rack travel in mm : 11.55  
Tolerance mm : ± 0.05  
  
Del. quantity  
cm3/1000 strokes : 103.0  
  
Tolerance  
cm3/1000 strokes : ± 1.0  
  
Check tolerance  
cm3/1000S. : ± 3.0  
  
Spreed  
Tolerance  
cm3/1000 strokes : 3.5  
  
Check tolerance  
cm3/1000S. : 8.0



Del. quantity  
 cm<sup>3</sup>/1000 strokes : 9.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 4.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1350  
 guide sleeve  
 travel mm : 8.20  
 Tolerance mm : ± 0.10

Rated speed rpm : 1000  
 guide sleeve  
 travel mm : 5.75  
 Tolerance mm : ± 0.25

Rated speed rpm : 300  
 guide sleeve  
 travel mm : 1.05  
 Tolerance mm : ± 0.25

Rated speed rpm : 700  
 guide sleeve  
 travel mm : 4.25  
 Tolerance mm : ± 0.25

Rated speed rpm : 1450  
 guide sleeve  
 travel mm : 9.15  
 Tolerance mm : ± 0.25

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1395

Rack travel in mm : 16.50  
 Tolerance mm : ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
 Aneroid pressure  
 hPa : 800  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 103.0

Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 3.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 8.0

##### CONTROL LEVER

control lever  
 position degree : 63.0  
 tolerance degree : ± 4.0

control lever  
 position degree : 112.0  
 tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 10.50  
 Rated speed rpm : 1360  
 Tolerance 1/min : ± 5

rack travel mm : 4.00  
 Rated speed rpm : 1475  
 Tolerance 1/min : ± 15

rack travel mm : 0.50  
 Tolerance mm : ± 0.50  
 Rated speed rpm : 1630

##### LOW IDLE

control lever  
 position degree : 68.0  
 tolerance degree : ± 4.0

control lever  
 position degree : 20.0  
 tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 300  
 rack travel mm : 7.00  
 Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 9.00

Rated speed rpm : 525

---

#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 11.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 11.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1100  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 11.95  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 800  
rack travel mm : 11.95  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 500  
rack travel mm : 1.55  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 380  
rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.10

---

##### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  250

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  270

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 800  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 98.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 61.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### BREAKAWAY

Rack travel in mm : 10.50  
Rated speed rpm : 1360  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 86.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 9.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 340  
Injection pump  
Pump designation : PES6A95D410RS2795  
EP type number : 9 400 084 020  
Governor  
Governor design. : RSV350...1250A0C1150  
: -5L  
Governor no. : 9 420 083 258  
Cust. part No. :

Customer-spec. information  
Customer : MBB  
Motor : OM 366  
Power KW : 94.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 015  
Outside diameter : 6.0

H02

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300

## BASIC SETTING

Rated speed rpm : 1250  
Rack travel in mm : 8.65  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 63.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 8.0

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 12.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800  
 Rack travel in mm : 0.65  
 Tolerance mm : + 0.35  
 governor spring  
 pre-tension  
 click setting x : 5.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
 Aneroid pressure  
 hPa : -  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 63.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 3.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 8.0

##### CONTROL LEVER

control lever  
 position degree : 110.0  
 tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 7.60  
 Rated speed rpm : 1295

H03

Tolerance 1/min : + 5  
 rack travel mm : 4.00  
 Rated speed rpm : 1347  
 Tolerance 1/min : + 15  
 rack travel mm : 0.85  
 Tolerance mm : + 0.55  
 Rated speed rpm : 1500

##### LOW IDLE

control lever  
 position degree : 82.0  
 tolerance degree : + 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 350  
 rack travel mm : 6.50

##### Testing:

Rated speed rpm : 350  
 rack travel mm : 7.00  
 Tolerance mm : + 0.10

rack travel mm : 2.00  
 Rated speed rpm : 475  
 Tolerance 1/min : + 30

Rated speed rpm : 100  
 CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 1250  
 rack travel mm : 8.65  
 Tolerance mm : + 0.05

Rated speed rpm : 500  
 rack travel mm : 8.70  
 Tolerance mm : + 0.10

Rated speed rpm : 400  
 rack travel mm : 10.10  
 Tolerance mm : + 0.30

##### BREAKAWAY

Rack travel in mm : 7.60  
Rated speed rpm : 1295  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.20  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 101.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 341  
Injection pump  
Pump designation : PES4A95D41ORS2805  
EP type number : 9 400 084 026  
Governor  
Governor design. : RSV350...1300AOC1150  
: -6L  
Governor no. : 9 420 083 257

Cust. part No.

Customer-spec. information  
Customer : MBB  
Motor : OM 364  
Power KW : 60.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 015  
Outside diameter : 6.0

H05

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 3- 4- 2  
Phasing : 0-90-180-270

## BASIC SETTING

Rated speed rpm : 1300  
Rack travel in mm : 9.45  
Tolerance mm : ± 0.05  
Del. quantity  
cm3/1000 strokes : 59.5  
Tolerance  
cm3/1000 strokes : ± 1.0  
Check tolerance  
cm3/1000S. : ± 3.0  
Speed  
Tolerance  
cm3/1000 strokes : 3.5  
Check tolerance  
cm3/1000S. : 8.0

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 9.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 4.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800  
 Rack travel in mm : 0.65  
 Tolerance mm : ± 0.35  
 governor spring  
 pre-tension  
 click setting x : 4.75

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
 Aneroid pressure  
 hPa : -  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 59.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 3.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 8.0

##### CONTROL LEVER

control lever  
 position degree : 111.0  
 tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 8.40  
 Rated speed rpm : 1345  
 Tolerance 1/min : ± 5

rack travel mm : 4.00  
 Rated speed rpm : 1405  
 Tolerance 1/min : ± 15  
 rack travel mm : 0.85  
 Tolerance mm : ± 0.55  
 Rated speed rpm : 1550

##### LOW IDLE

control lever  
 position degree : 82.0  
 tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 350  
 rack travel mm : 7.00

##### Testing:

Rated speed rpm : 350  
 rack travel mm : 7.50  
 Tolerance mm : ± 0.10

rack travel mm : 2.00  
 Rated speed rpm : 500  
 Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 1300  
 rack travel mm : 9.45  
 Tolerance mm : ± 0.05

Rated speed rpm : 500  
 rack travel mm : 9.50  
 Tolerance mm : ± 0.10

Rated speed rpm : 400  
 rack travel mm : 10.90  
 Tolerance mm : ± 0.30

##### BREAKAWAY



Rack travel in mm : 8.40  
Rated speed rpm : 1345  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.90  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 94.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  10.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 9.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 351  
Injection pump  
Pump designation : PES6A95D41ORS2772  
EP type number : 9 400 084 018  
Governor  
Governor design. : RQV300...1300AB1066  
: -13L  
Governor no. : 9 420 080 332

Cust. part No. :

Customer-spec. information  
Customer : MBB  
Motor : OM 366 LA  
Power KW : 150.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

H08

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 11.45  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 104.0

Tolerance  
cm3/1000 strokes : ± 0.5

Check tolerance  
cm3/1000S. : ± 2.5

Speed  
Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 8.0

Del. quantity	
cm <sup>3</sup> /1000 strokes	: 11.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 2.0
Check tolerance	
cm <sup>3</sup> /1000s.	: ± 4.5
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.5
Check tolerance	
cm <sup>3</sup> /1000s.	: 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm	: 300
guide sleeve	
travel mm	: 1.05
Tolerance mm	: ± 0.25
Rated speed rpm	: 1500
guide sleeve	
travel mm	: 8.55
Tolerance mm	: ± 0.05
Rated speed rpm	: 500
guide sleeve	
travel mm	: 2.55
Tolerance mm	: ± 0.25
Rated speed rpm	: 750
guide sleeve	
travel mm	: 4.20
Tolerance mm	: ± 0.10

##### GUIDE SLEEVE POSITION

Rated speed rpm	: 1500
Rack travel in mm	: 16.50
Tolerance mm	: ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1300
Aneroid pressure	
hPa	: 900
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 104.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 0.5
Check tolerance	
cm <sup>3</sup> /1000s.	: ± 2.5

Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 3.5
Check tolerance	
cm <sup>3</sup> /1000s.	: 8.0

##### CONTROL LEVER

control lever	
position degree	: 60.0
tolerance degree	: ± 4.0

control lever	
position degree	: 109.0
tolerance degree	: ± 4.0

##### RATED SPEED

rack travel mm	: 10.60
Rated speed rpm	: 1360
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1505
Tolerance 1/min	: ± 15

rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1650

##### LOW IDLE

control lever	
position degree	: 68.0
tolerance degree	: ± 4.0

control lever	
position degree	: 19.0
tolerance degree	: ± 4.0

##### Testing:

Rated speed rpm	: 300
rack travel mm	: 7.00
Tolerance mm	: ± 0.10

Rated speed rpm	: 100
-----------------	-------

CRT mm min.	: > 8.00
-------------	----------

Rated speed rpm	: 375
-----------------	-------

##### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 11.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 11.45  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 11.45  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 340  
rack travel mm : 0.40  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 560  
rack travel mm : 1.35  
Tolerance mm :  $\pm$  0.05

---

##### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 94.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 60.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

##### BREAKAWAY

Rack travel in mm : 10.60  
Rated speed rpm : 1360  
Tolerance 1/min :  $\pm$  5

---

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

##### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.04.96  
Test oil : ISO 4113

Combination No. : 9 400 085 355

Injection pump  
Pump designation : PES6A100D120RS2841  
EP type number : 9 400 084 033

Governor  
Governor design. : RQV350...1400AB1272R  
Governor no. : 9 420 080 344

Cust. part No. : 3355313

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 BT 140  
Power KW : 105.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.90  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery differende

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 3.50

## BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 8.85  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 81.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000s. : ± 3.0

Spreed	
Tolerance	
cm3/1000 strokes	: 3.5
Check tolerance	
cm3/1000S.	: 6.0
Del. quantity	
cm3/1000 strokes	: 7.0
Tolerance	
cm3/1000 strokes	: +- 2.0
Check tolerance	
cm3/1000S.	: +- 4.0
Spreed	
Tolerance	
cm3/1000 strokes	: 3.5
Check tolerance	
cm3/1000S.	: 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1400  
guide sleeve  
travel mm : 6.50  
Tolerance mm : +- 0.10

Rated speed rpm : 1000  
guide sleeve  
travel mm : 4.95  
Tolerance mm : +- 0.25

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.95  
Tolerance mm : +- 0.25

Rated speed rpm : 600  
guide sleeve  
travel mm : 3.95  
Tolerance mm : +- 0.25

Rated speed rpm : 1650  
guide sleeve  
travel mm : 7.75  
Tolerance mm : +- 0.25

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400  
Aneroid pressure  
hPa : -  
Del. quantity  
cm3/1000 strokes : 81.0

Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 3.0  
Spreed  
Tolerance  
cm3/1000 strokes : 3.5  
Check tolerance  
cm3/1000S. : 6.0

##### CONTROL LEVER

control lever  
position degree : 51.0  
tolerance degree : +- 4.0

control lever  
position degree : 106.0  
tolerance degree : +- 4.0

##### RATED SPEED

rack travel mm : 7.80  
Rated speed rpm : 1473  
Tolerance 1/min : +- 8

rack travel mm : 4.00  
Rated speed rpm : 1635  
Tolerance 1/min : +- 15

rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1800

##### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree : +- 4.0

control lever  
position degree : 16.0  
tolerance degree : +- 4.0

##### Testing:

Rated speed rpm : 350  
rack travel mm : 4.90  
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 9.00

Rated speed rpm : 450

---

#### TORQUE CONTROL

Rated speed rpm : 1400  
rack travel mm : 8.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 8.85  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 270

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 290

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 7.80  
Rated speed rpm : 1473  
Tolerance 1/min :  $\pm$  8

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 173.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 7.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 356  
Injection pump  
Pump designation : PES6A85D410RS2756  
EP type number : 9 400 093 006  
Governor  
Governor design. : RSV325...1150A1C1165  
: L  
Governor no. : 9 420 083 290  
Cust. part No. :

Customer-spec. information  
Customer : DEUTZ ARG.  
Motor : BF6L913  
Power KW : 118.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 003  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 32.0  
Tolerance bar : ± 1.0  
Prestroke mm : 1.95  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300

## BASIC SETTING

Rated speed rpm : 1150  
Rack travel in mm : 11.35  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 73.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0



Del. quantity  
 cm<sup>3</sup>/1000 strokes : 11.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 4.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 7.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800  
 Rack travel in mm : 0.65  
 Tolerance mm : ± 0.35  
 governor spring  
 pre-tension  
 click setting x : 5.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
 Aneroid pressure  
 hPa : -  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 73.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 0.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 2.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 7.0

##### CONTROL LEVER

control lever  
 position degree : 114.0  
 tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 10.30  
 Rated speed rpm : 1195

Tolerance 1/min : ± 5  
 rack travel mm : 4.00  
 Rated speed rpm : 1235  
 Tolerance 1/min : ± 15  
 rack travel mm : 0.85  
 Tolerance mm : ± 0.55  
 Rated speed rpm : 1380

##### LOW IDLE

control lever  
 position degree : 77.0  
 tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 325  
 rack travel mm : 7.50

##### Testing:

Rated speed rpm : 325  
 rack travel mm : 8.00  
 Tolerance mm : ± 0.10

rack travel mm : 2.00  
 Rated speed rpm : 570  
 Tolerance 1/min : ± 30

Rated speed rpm : 100  
 CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 1150  
 rack travel mm : 11.35  
 Tolerance mm : ± 0.05

Rated speed rpm : 500  
 rack travel mm : 13.05  
 Tolerance mm : ± 0.05

Rated speed rpm : 800  
 rack travel mm : 12.35  
 Tolerance mm : ± 0.15

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 79.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

Aneroid pressure  
hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

---

#### BREAKAWAY

Rack travel in mm : 10.30  
Rated speed rpm : 1195  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 364  
Injection pump  
Pump designation : PES6A100D120RS2849  
EP type number : 9 400 084 035  
Governor  
Governor design. : RSV450...900A1C2270R  
Governor no. : 9 420 083 294

Cust. part No. : 3355362

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 BT  
Power KW : 124.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.80  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery difference

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 4.00

## BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 10.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 119.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000s. : ± 3.0

Speed	
Tolerance	
cm3/1000 strokes :	3.5
Check tolerance	
cm3/1000S. :	8.0
Del. quantity	
cm3/1000 strokes :	23.0
Tolerance	
cm3/1000 strokes : +	2.0
Check tolerance	
cm3/1000S. : +	4.5
Speed	
Tolerance	
cm3/1000 strokes :	5.5
Check tolerance	
cm3/1000S. :	9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm :	800
Rack travel in mm :	0.65
Tolerance mm : +	0.35
governor spring	
pre-tension	
click setting x :	3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	850
Aneroid pressure	
hPa :	-
Del. quantity	
cm3/1000 strokes :	119.0
Tolerance	
cm3/1000 strokes : +	1.0
Check tolerance	
cm3/1000S. : +	3.0
Speed	
Tolerance	
cm3/1000 strokes :	3.5
Check tolerance	
cm3/1000S. :	8.0

CONTROL LEVER

control lever	
position degree :	93.0
tolerance degree : +	4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm :	915
rack travel mm :	9.30
Rated speed rpm :	944
Tolerance 1/min : +	4
rack travel mm :	4.00
rack travel mm :	0.85
Tolerance mm : +	0.55
Rated speed rpm :	1000
Rated speed rpm :	916
rack travel mm :	9.30
Rated speed rpm :	945
Tolerance 1/min : +	4
rack travel mm :	4.00
rack travel mm :	0.85
Tolerance mm : +	0.55
Rated speed rpm :	1000
Rated speed rpm :	917
rack travel mm :	9.30
Rated speed rpm :	946
Tolerance 1/min : +	4
rack travel mm :	4.00
rack travel mm :	0.85
Tolerance mm : +	0.55
Rated speed rpm :	1000
Rated speed rpm :	918
rack travel mm :	9.30
Rated speed rpm :	947
Tolerance 1/min : +	4
rack travel mm :	4.00
rack travel mm :	0.85
Tolerance mm : +	0.55
Rated speed rpm :	1000
Rated speed rpm :	919
rack travel mm :	9.30
Rated speed rpm :	948
Tolerance 1/min : +	4
rack travel mm :	4.00
rack travel mm :	0.85

Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1000  
  
Rated speed rpm : 920  
rack travel mm : 9.30  
  
Rated speed rpm : 949  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00  
  
rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1000

---

#### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 450  
rack travel mm : 4.10

Testing:

Rated speed rpm : 450  
rack travel mm : 4.60  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 480  
Tolerance 1/min :  $\pm$  30

Rated speed rpm : 100

CRT mm min. :  $>$  19.00

---

#### TORQUE CONTROL

Rated speed rpm : 850  
rack travel mm : 10.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 550  
rack travel mm : 10.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400  
rack travel mm : 11.60  
Tolerance mm :  $\pm$  0.30

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 169.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  11.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.04.96  
Test oil : ISO 4113

Combination No. : 9 400 085 364DJ

Injection pump  
Pump designation : PES6A100D12ORS2849  
EP type number : 9 400 084 035

Governor  
Governor design. : RSV450...900A1C2270R  
Governor no. : 9 420 083 294

Cust. part No. : 3355363-VERSA039

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 BT  
Power KW : 101.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.80  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery difference

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 4.00

## BASIC SETTING

Rated speed rpm : 870

Rack travel in mm : 8.95  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 95.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000s. : ± 3.0

Spreed	
Tolerance	
cm3/1000 strokes :	3.5
Check tolerance	
cm3/1000S.	: 8.0
Del. quantity	
cm3/1000 strokes :	23.0
Tolerance	
cm3/1000 strokes :	+ 2.0
Check tolerance	
cm3/1000S.	: + 4.5
Spreed	
Tolerance	
cm3/1000 strokes :	5.5
Check tolerance	
cm3/1000S.	: 9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm :	800
Rack travel in mm :	0.65
Tolerance mm :	+ 0.35
governor spring	
pre-tension	
click setting x :	3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	870
Aneroid pressure	
hPa :	-
Del. quantity	
cm3/1000 strokes :	95.5
Tolerance	
cm3/1000 strokes :	+ 1.0
Check tolerance	
cm3/1000S.	: + 3.0
Spreed	
Tolerance	
cm3/1000 strokes :	3.5
Check tolerance	
cm3/1000S.	: 8.0

CONTROL LEVER

control lever	
position degree :	93.0
tolerance degree :	+ 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm :	915
rack travel mm :	7.90
Rated speed rpm :	936
Tolerance 1/min :	+ 4
rack travel mm :	4.00
rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	1000
Rated speed rpm :	916
rack travel mm :	7.90
Rated speed rpm :	937
Tolerance 1/min :	+ 4
rack travel mm :	4.00
rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	1000
Rated speed rpm :	917
rack travel mm :	7.90
Rated speed rpm :	938
Tolerance 1/min :	+ 4
rack travel mm :	4.00
rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	1000
Rated speed rpm :	918
rack travel mm :	7.90
Rated speed rpm :	939
Tolerance 1/min :	+ 4
rack travel mm :	4.00
rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	1000
Rated speed rpm :	919
rack travel mm :	7.90
Rated speed rpm :	940
Tolerance 1/min :	+ 4
rack travel mm :	4.00
rack travel mm :	0.85

Tolerance mm :  $\pm$  0.55  
 Rated speed rpm : 1000  
  
 Rated speed rpm : 920  
 rack travel mm : 7.90  
  
 Rated speed rpm : 941  
 Tolerance 1/min :  $\pm$  4  
 rack travel mm : 4.00  
  
 rack travel mm : 0.85  
 Tolerance mm :  $\pm$  0.55  
 Rated speed rpm : 1000

#### LOW IDLE

control lever  
 position degree : 74.0  
 tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 450  
 rack travel mm : 4.10

Testing:

Rated speed rpm : 450  
 rack travel mm : 4.60  
 Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
 Rated speed rpm : 480  
 Tolerance 1/min :  $\pm$  30

Rated speed rpm : 100

CRT mm min. :  $>$  19.00

#### TORQUE CONTROL

Rated speed rpm : 870  
 rack travel mm : 8.95  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 550  
 rack travel mm : 9.00  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400  
 rack travel mm : 10.70  
 Tolerance mm :  $\pm$  0.30

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
 rack travel mm : 20.00  
 Tolerance mm :  $\pm$  1.00  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 169.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  11.0

#### LOW IDLE

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 23.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 364EH  
Injection pump  
Pump designation : PES6A100D120RS2849  
EP type number : 9 400 084 035  
Governor  
Governor design. : RSV450...900A1C2270R  
Governor no. : 9 420 083 294  
Cust. part No. : 3355525-VERSA047

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 BT  
Power KW : 85.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.80  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300

Beginning of delivery differende  
and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 4.00

## BASIC SETTING

Rated speed rpm : 700  
Rack travel in mm : 8.35  
Tolerance mm : ± 0.05  
Del. quantity  
cm3/1000 strokes : 92.5  
Tolerance  
cm3/1000 strokes : ± 1.0  
Check tolerance  
cm3/1000S. : ± 3.0

Spreed	
Tolerance	
cm3/1000 strokes :	3.5

Check tolerance	
cm3/1000S. :	8.0

Del. quantity	
cm3/1000 strokes :	23.0

Tolerance	
cm3/1000 strokes : +	2.0

Check tolerance	
cm3/1000S. : +	4.5

Spreed	
Tolerance	
cm3/1000 strokes :	5.5

Check tolerance	
cm3/1000S. :	9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm :	800
-------------------	-----

Rack travel in mm :	0.65
Tolerance mm : +	0.35

governor spring	
pre-tension	
click setting x :	3.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	700
-------------------	-----

Aneroid pressure	
hPa :	-

Del. quantity	
cm3/1000 strokes :	92.5

Tolerance	
cm3/1000 strokes : +	1.0

Check tolerance	
cm3/1000S. : +	3.0

Spreed	
Tolerance	
cm3/1000 strokes :	3.5

Check tolerance	
cm3/1000S. :	8.0

##### CONTROL LEVER

control lever	
position degree :	87.0
tolerance degree : +	4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm :	762
rack travel mm :	7.30

Rated speed rpm :	781
Tolerance 1/min : +	4

rack travel mm :	4.00
------------------	------

rack travel mm :	0.85
Tolerance mm : +	0.55

Rated speed rpm :	900
-------------------	-----

Rated speed rpm :	763
rack travel mm :	7.30

Rated speed rpm :	782
Tolerance 1/min : +	4

rack travel mm :	4.00
------------------	------

rack travel mm :	0.85
Tolerance mm : +	0.55

Rated speed rpm :	900
-------------------	-----

Rated speed rpm :	764
rack travel mm :	7.30

Rated speed rpm :	783
Tolerance 1/min : +	4

rack travel mm :	4.00
------------------	------

rack travel mm :	0.85
Tolerance mm : +	0.55

Rated speed rpm :	900
-------------------	-----

Rated speed rpm :	765
rack travel mm :	7.30

Rated speed rpm :	784
Tolerance 1/min : +	4

rack travel mm :	4.00
------------------	------

rack travel mm :	0.85
Tolerance mm : +	0.55

Rated speed rpm :	900
-------------------	-----

Rated speed rpm :	766
rack travel mm :	7.30

Rated speed rpm :	785
Tolerance 1/min : +	4

rack travel mm :	4.00
------------------	------

rack travel mm :	0.85
------------------	------

Tolerance mm :  $\pm$  0.55  
 Rated speed rpm : 900  
  
 Rated speed rpm : 767  
 rack travel mm : 7.30  
  
 Rated speed rpm : 786  
 Tolerance 1/min :  $\pm$  4  
 rack travel mm : 4.00  
  
 rack travel mm : 0.85  
 Tolerance mm :  $\pm$  0.55  
 Rated speed rpm : 900

#### LOW IDLE

control lever  
 position degree : 74.0  
 tolerance degree :  $\pm$  4.0  
  
 Setting point w/out bumper spring  
  
 Rated speed rpm : 450  
 rack travel mm : 4.10  
  
 Testing:  
  
 Rated speed rpm : 450  
 rack travel mm : 4.60  
 Tolerance mm :  $\pm$  0.10  
  
 rack travel mm : 2.00  
 Rated speed rpm : 480  
 Tolerance 1/min :  $\pm$  30  
  
 Rated speed rpm : 100  
  
 CRT mm min. :  $>$  19.00

#### TORQUE CONTROL

Rated speed rpm : 700  
 rack travel mm : 8.35  
 Tolerance mm :  $\pm$  0.05  
  
 Rated speed rpm : 550  
 rack travel mm : 8.40  
 Tolerance mm :  $\pm$  0.10  
  
 Rated speed rpm : 400  
 rack travel mm : 10.00  
 Tolerance mm :  $\pm$  0.30

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
 rack travel mm : 20.00  
 Tolerance mm :  $\pm$  1.00  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 169.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  11.0

#### LOW IDLE

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 23.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 364EI  
Injection pump  
Pump designation : PES6A100D120RS2849  
EP type number : 9 400 084 035  
Governor  
Governor design. : RSV450...900A1C2270R  
Governor no. : 9 420 083 294

Cust. part No. : 3355524-VERSA048

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 BT  
Power KW : 105.8

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder assembly : 0 681 343 009

Opening pressure bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.80  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery difference

and maximum rack travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 4.00

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 10.25  
Tolerance mm : ± 0.05

Del. quantity cm<sup>3</sup>/1000 strokes : 123.0

Tolerance cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance cm<sup>3</sup>/1000S. : ± 3.0

Spreed	
Tolerance	
cm3/1000 strokes :	3.5
Check tolerance	
cm3/1000S. :	8.0
Del. quantity	
cm3/1000 strokes :	23.0
Tolerance	
cm3/1000 strokes :	+ 2.0
Check tolerance	
cm3/1000S. :	+ 4.5
Spreed	
Tolerance	
cm3/1000 strokes :	5.5
Check tolerance	
cm3/1000S. :	9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm :	800
Rack travel in mm :	0.65
Tolerance mm :	+ 0.35
governor spring	
pre-tension	
click setting x :	3.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	700
Aneroid pressure	
hPa :	-
Del. quantity	
cm3/1000 strokes :	123.0
Tolerance	
cm3/1000 strokes :	+ 1.0
Check tolerance	
cm3/1000S. :	+ 3.0
Spreed	
Tolerance	
cm3/1000 strokes :	3.5
Check tolerance	
cm3/1000S. :	8.0

##### CONTROL LEVER

control lever	
position degree :	87.0
tolerance degree :	+ 4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm :	755
rack travel mm :	9.20
Rated speed rpm	
Tolerance 1/min :	+ 4
rack travel mm :	4.00
rack travel mm	
Tolerance mm :	+ 0.85
Rated speed rpm :	900
Rated speed rpm	
rack travel mm :	756
rack travel mm :	9.20
Rated speed rpm	
Tolerance 1/min :	+ 4
rack travel mm :	4.00
rack travel mm	
Tolerance mm :	+ 0.85
Rated speed rpm :	900
Rated speed rpm	
rack travel mm :	757
rack travel mm :	9.20
Rated speed rpm	
Tolerance 1/min :	+ 4
rack travel mm :	4.00
rack travel mm	
Tolerance mm :	+ 0.85
Rated speed rpm :	900
Rated speed rpm	
rack travel mm :	758
rack travel mm :	9.20
Rated speed rpm	
Tolerance 1/min :	+ 4
rack travel mm :	4.00
rack travel mm	
Tolerance mm :	+ 0.85
Rated speed rpm :	900
Rated speed rpm	
rack travel mm :	759
rack travel mm :	9.20
Rated speed rpm	
Tolerance 1/min :	+ 4
rack travel mm :	4.00
rack travel mm	
Tolerance mm :	+ 0.85

Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 900  
  
Rated speed rpm : 760  
rack travel mm : 9.20  
  
Rated speed rpm : 791  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00  
  
rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 900

---

#### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 450  
rack travel mm : 4.10

Testing:

Rated speed rpm : 450  
rack travel mm : 4.60  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 480  
Tolerance 1/min :  $\pm$  30

Rated speed rpm : 100

CRT mm min. :  $>$  19.00

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 10.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 550  
rack travel mm : 10.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.30

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 169.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 365  
Injection pump  
Pump designation : PES6A90D410RS2823  
EP type number : 0 410 896 093  
Governor  
Governor design. : RQV300...1350AB1278L  
Governor no. : 9 420 080 359

Cust. part No. : 98455951

Customer-spec. information  
Customer : FIAT ARGENTINA  
Motor : 8.060.25.600  
Power KW : 130.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0

Prestroke mm : 2.80  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10

Rack travel in mm : 10.50  
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## BASIC SETTING

Rated speed rpm : 1350

Rack travel in mm : 11.55  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 82.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 0.5

Check tolerance  
cm<sup>3</sup>/1000s. : + 2.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000s. : 7.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 10.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.25  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1015  
guide sleeve  
travel mm : 6.05  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 460  
guide sleeve  
travel mm : 2.45  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 640  
guide sleeve  
travel mm : 3.45  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1390  
guide sleeve  
travel mm : 8.45  
Tolerance mm :  $\pm$  0.25

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1480

Rack travel in mm : 12.20  
Tolerance mm :  $\pm$  1.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1350  
Aneroid pressure  
hPa : 800

Del. quantity  
cm<sup>3</sup>/1000 strokes : 82.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  2.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

##### CONTROL LEVER

control lever  
position degree : 116.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 10.50  
Rated speed rpm : 1395  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1530  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1650

##### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree :  $\pm$  4.0

##### Testing:

Rated speed rpm : 300  
rack travel mm : 7.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 200

CRT mm min. : > 8.00

Rated speed rpm : 400

##### TORQUE CONTROL

Rated speed rpm : 1350  
rack travel mm : 11.55



Tolerance mm	:	±	0.05
Rated speed rpm	:		500
rack travel mm	:		12.55
Tolerance mm	:	±	0.05
Rated speed rpm	:		800
rack travel mm	:		12.10
Tolerance mm	:	±	0.10
Rated speed rpm	:		900
rack travel mm	:		11.70
Tolerance mm	:	±	0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm	:		500
Pressure hPa	:		800
rack travel mm	:		12.55
Tolerance mm	:	±	0.05

##### MEASUREMENT

Pressure hPa	:		-
Rated speed rpm	:		500
rack travel mm	:		10.40
Tolerance mm	:	±	0.10
Rated speed rpm	:		500
Pressure hPa	:		520
rack travel mm	:		12.10
Tolerance mm	:	±	0.10
Pressure hPa	:		400
rack travel mm	:		10.75
Tolerance mm	:	±	0.05

---

##### START CUT-OUT

Rated speed rpm	:	>	100
Rated speed rpm	:	<	220
Check speed 1/min	:	>	80
Check speed 1/min	:	<	240

---

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa	:		800
Rated speed rpm	:		800

Del. quantity cm3/1000 strokes	:		81.5
Tolerance cm3/1000 strokes	:	±	1.5
Check tolerance cm3/1000S.	:	±	3.5
Aneroid pressure hPa	:		-
Rated speed rpm	:		500
Del. quantity cm3/1000 strokes	:		50.0
Tolerance cm3/1000 strokes	:	±	0.5
Check tolerance cm3/1000S.	:	±	2.5

---

##### BREAKAWAY

Rack travel in mm	:		10.50
Rated speed rpm	:		1395
Tolerance 1/min	:	±	5

---

##### STARTING FUEL DELIVERY

Rated speed rpm	:		100
rack travel mm	:		20.00
Tolerance mm	:	±	1.00
Del. quantity cm3/1000 strokes	:		156.0
Tolerance cm3/1000 strokes	:	±	8.0
Check tolerance cm3/1000S.	:	±	11.0

---

##### LOW IDLE

Del. quantity cm3/1000 strokes	:		10.0
Tolerance cm3/1000 strokes	:	±	2.0
Check tolerance cm3/1000S.	:	±	4.0
Speed Tolerance cm3/1000 strokes	:		4.5
Check tolerance cm3/1000S.	:		7.0

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 10.04.96  
Test oil : ISO 4113  
  
Combination No. : 9 400 085 367  
  
Injection pump  
Pump designation : PES6A95D410RS2812  
EP type number : 9 400 084 028  
  
Governor  
Governor design. : RQV350...1250AB1280L  
Governor no. : 9 420 080 365

Cust. part No. : 9.0520.05.6.9505

Customer-spec. information  
Customer : MWM  
Motor : 6.10 T  
Power KW : 135.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.80  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Beginning of delivery differende

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 2.00

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 12.05  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 96.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

Spread  
Tolerance  
cm3/1000 strokes : 3.5

---

Check tolerance  
cm3/1000S. : 8.0

Del. quantity  
cm3/1000 strokes : 16.0

Tolerance  
cm3/1000 strokes :  $\pm$  2.0

Check tolerance  
cm3/1000S. :  $\pm$  4.5

Spread  
Tolerance  
cm3/1000 strokes : 5.5

Check tolerance  
cm3/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1350  
guide sleeve  
travel mm : 7.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 800  
guide sleeve  
travel mm : 3.95  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.05  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 550  
guide sleeve  
travel mm : 2.75  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1500  
guide sleeve  
travel mm : 8.55  
Tolerance mm :  $\pm$  0.25

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1490

Rack travel in mm : 16.50  
Tolerance mm :  $\pm$  1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure  
hPa : 900

Del. quantity  
cm3/1000 strokes : 96.5

Tolerance  
cm3/1000 strokes :  $\pm$  1.0

Check tolerance  
cm3/1000S. :  $\pm$  3.0

Spread  
Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 8.0

---

##### CONTROL LEVER

control lever  
position degree : 55.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 110.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 11.00  
Rated speed rpm : 1318  
Tolerance 1/min :  $\pm$  8

rack travel mm : 4.00  
Rated speed rpm : 1480  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1650

---

##### LOW IDLE

control lever  
position degree : 69.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 14.0  
tolerance degree :  $\pm$  4.0

Testing:

Rated speed rpm : 350  
rack travel mm : 6.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100  
CRT mm min. :  $>$  8.50  
Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 12.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 12.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1050  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 12.45  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 520  
rack travel mm : 2.25  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 260  
rack travel mm : 0.80  
Tolerance mm :  $\pm$  0.10

---

##### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  270

Check  
speed 1/min :  $>$  80

Check  
speed 1/min :  $<$  290

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 97.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : 900  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 99.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 49.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### BREAKAWAY

Rack travel in mm : 11.00  
Rated speed rpm : 1318  
Tolerance 1/min :  $\pm$  8

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

---

LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.04.96  
Test oil : ISO 4113

Combination No. : 9 400 085 368

Injection pump  
Pump designation : PES3A80D320RS1281  
EP type number : 9 400 083 054

Governor  
Governor design. : RSV350...900A7C627R  
Governor no. : 9 420 083 264

Cust. part No. : 9.0520.05.3.8063

## Customer-spec. information

Customer : MWM  
Motor : D229.3  
Power KW : 32.0

## TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 003

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 2- 3

Phasing : 0-120-240

Beginning of delivery differende

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 4.50

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 10.25  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 52.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

Rated speed rpm : 350

Rack travel in mm : 7.40  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 9.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : ± 0.35

governor spring  
pre-tension  
click setting x : 6.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 52.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

##### CONTROL LEVER

control lever  
position degree : 111.0

tolerance degree : ± 4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 940  
rack travel mm : 9.20

Rated speed rpm : 969  
Tolerance 1/min : ± 4

rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : ± 0.55

Rated speed rpm : 1100

Rated speed rpm : 941  
rack travel mm : 9.20

Rated speed rpm : 970  
Tolerance 1/min : ± 4

rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : ± 0.55

Rated speed rpm : 1100

Rated speed rpm : 942  
rack travel mm : 9.20

Rated speed rpm : 971  
Tolerance 1/min : ± 4

rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : ± 0.55

Rated speed rpm : 1100

Rated speed rpm : 943  
rack travel mm : 9.20

Rated speed rpm : 972  
Tolerance 1/min : ± 4

rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : ± 0.55

Rated speed rpm : 1100

Rated speed rpm : 944  
rack travel mm : 9.20

Rated speed rpm : 973  
Tolerance 1/min : ± 4



rack travel mm : 4.00

rack travel mm : 0.85

Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1100

Rated speed rpm : 945

rack travel mm : 9.20

Rated speed rpm : 974

Tolerance 1/min :  $\pm$  4

rack travel mm : 4.00

rack travel mm : 0.85

Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1100

---

#### LOW IDLE

control lever

position degree : 79.0

tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 350

rack travel mm : 5.50

Testing:

Rated speed rpm : 350

rack travel mm : 6.00

Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00

Rated speed rpm : 450

Tolerance 1/min :  $\pm$  30

Rated speed rpm : 100

CRT mm min. : > 19.00

---

#### TORQUE CONTROL

Rated speed rpm : 900

rack travel mm : 10.25

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

rack travel mm : 10.30

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400

rack travel mm : 11.20

Tolerance mm :  $\pm$  0.30

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 20.00

Tolerance mm :  $\pm$  1.00

---

#### LOW IDLE

Rated speed rpm : 350

rack travel mm : 7.40

Tolerance mm :  $\pm$  0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 9.5

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  1.5

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  3.5

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance

cm<sup>3</sup>/1000S. : 6.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.04.96  
Test oil : ISO 4113

Combination No. : 9 400 085 369

Injection pump  
Pump designation : PES4A80D32ORS1282  
EP type number : 9 400 083 056

Governor  
Governor design. : RSV350...900A7C627R  
Governor no. : 9 420 083 264

Cust. part No. : 90520.05.4.8065

## Customer-spec. information

Customer : MWM  
Motor : D.229-4  
Power KW : 34.3

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 003

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Beginning of delivery difference

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 4.50

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 10.25  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 52.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

Rated speed rpm : 350

Rack travel in mm : 7.40  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 9.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.5

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : ± 0.35

governor spring  
pre-tension  
click setting x : 6.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 52.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

##### CONTROL LEVER

control lever  
position degree : 111.0  
tolerance degree : ± 4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 940  
rack travel mm : 9.20

Rated speed rpm : 969  
Tolerance 1/min : ± 4

rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : ± 0.55

Rated speed rpm : 1100

Rated speed rpm : 941  
rack travel mm : 9.20

Rated speed rpm : 970  
Tolerance 1/min : ± 4

rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : ± 0.55

Rated speed rpm : 1100

Rated speed rpm : 942  
rack travel mm : 9.20

Rated speed rpm : 971  
Tolerance 1/min : ± 4

rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : ± 0.55

Rated speed rpm : 1100

Rated speed rpm : 943  
rack travel mm : 9.20

Rated speed rpm : 972  
Tolerance 1/min : ± 4

rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : ± 0.55

Rated speed rpm : 1100

Rated speed rpm : 944  
rack travel mm : 9.20

Rated speed rpm : 973  
Tolerance 1/min : ± 4

rack travel mm : 4.00

rack travel mm : 0.85

Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1100

Rated speed rpm : 945

rack travel mm : 9.20

Rated speed rpm : 974

Tolerance 1/min :  $\pm$  4

rack travel mm : 4.00

rack travel mm : 0.85

Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1100

---

#### LOW IDLE

control lever

position degree : 79.0

tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 350

rack travel mm : 5.50

Testing:

Rated speed rpm : 350

rack travel mm : 6.00

Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00

Rated speed rpm : 450

Tolerance 1/min :  $\pm$  30

Rated speed rpm : 100

CRT mm min. : > 19.00

---

#### TORQUE CONTROL

Rated speed rpm : 900

rack travel mm : 10.25

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

rack travel mm : 10.30

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400

rack travel mm : 11.20

Tolerance mm :  $\pm$  0.30

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 20.00

Tolerance mm :  $\pm$  1.00

---

#### LOW IDLE

Rated speed rpm : 350

rack travel mm : 7.40

Tolerance mm :  $\pm$  0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 9.5

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  1.5

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  3.5

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance

cm<sup>3</sup>/1000S. : 6.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 370  
Injection pump  
Pump designation : PES6A80D320RS1271  
EP type number : 9 400 083 058  
Governor  
Governor design. : RSV350...900A7C627R  
Governor no. : 9 420 083 264

Cust. part No. : 9.0520.05.6.8063

## Customer-spec. information

Customer : MWM  
Motor : D229-6  
Power KW : 61.9

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 003

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Beginning of delivery differende

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 4.50

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 10.25  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 52.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : + 2.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

Rated speed rpm : 350

Rack travel in mm : 7.40  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 9.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.5

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : + 0.35

governor spring  
pre-tension  
click setting x : 6.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 52.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : + 2.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

##### CONTROL LEVER

control lever  
position degree : 111.0  
tolerance degree : + 4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 940  
rack travel mm : 9.20

Rated speed rpm : 969  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1100

Rated speed rpm : 941  
rack travel mm : 9.20

Rated speed rpm : 970  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1100

Rated speed rpm : 942  
rack travel mm : 9.20

Rated speed rpm : 971  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1100

Rated speed rpm : 943  
rack travel mm : 9.20

Rated speed rpm : 972  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1100

Rated speed rpm : 944  
rack travel mm : 9.20

Rated speed rpm : 973

Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1100

Rated speed rpm : 945  
rack travel mm : 9.20

Rated speed rpm : 974  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1100

---

#### LOW IDLE

control lever  
position degree : 79.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 5.50

Testing:

Rated speed rpm : 350  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 450  
Tolerance 1/min :  $\pm$  30

Rated speed rpm : 100

CRT mm min. : > 19.00

---

#### TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 10.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 10.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.30

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00

---

#### LOW IDLE

Rated speed rpm : 350  
rack travel mm : 7.40  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 9.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  3.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 6.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.04.96  
Test oil : ISO 4113

Combination No. : 9 400 085 372

Injection pump  
Pump designation : PES6A95D410RS2772  
EP type number : 9 400 084 018

Governor  
Governor design. : RQV300...1300AB1283L  
Governor no. : 9 420 080 367

Cust. part No. :

Customer-spec. information  
Customer : MBB  
Motor : OM 366 LA  
Power KW : 155.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 11.65  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 106.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0



Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.05  
Tolerance mm : ± 0.25

Rated speed rpm : 1500  
guide sleeve  
travel mm : 8.55  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
guide sleeve  
travel mm : 2.55  
Tolerance mm : ± 0.25

Rated speed rpm : 750  
guide sleeve  
travel mm : 4.20  
Tolerance mm : ± 0.10

GUIDE SLEEVE POSITION

Rated speed rpm : 1500

Rack travel in mm : 16.50  
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 106.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

CONTROL LEVER

control lever  
position degree : 60.0  
tolerance degree : ± 4.0

control lever  
position degree : 109.0  
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.60  
Rated speed rpm : 1360  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1505  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1650

LOW IDLE

control lever  
position degree : 68.0  
tolerance degree : ± 4.0

control lever  
position degree : 19.0  
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 7.00  
Tolerance mm : ± 0.10

Rated speed rpm : 100  
CRT mm min. : > 8.00

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 11.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 11.65  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 11.65  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 340  
rack travel mm : 0.40  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 560  
rack travel mm : 1.35  
Tolerance mm :  $\pm$  0.05

---

##### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 95.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 61.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

##### BREAKAWAY

Rack travel in mm : 10.60  
Rated speed rpm : 1360  
Tolerance 1/min :  $\pm$  5

---

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

##### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 373  
Injection pump  
Pump designation : PES6A95D410RS2795  
EP type number : 9 400 084 020  
Governor  
Governor design. : RSV350...1250A0C1169  
: L  
Governor no. : 9 420 083 296  
Cust. part No. :

Customer-spec. information  
Customer : MBB  
Motor : OM 366  
Power KW : 94.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 015  
Outside diameter : 6.0

J21

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300

## BASIC SETTING

Rated speed rpm : 1250  
Rack travel in mm : 8.65  
Tolerance mm : ± 0.05  
Del. quantity  
cm3/1000 strokes : 63.5  
Tolerance  
cm3/1000 strokes : ± 1.0  
Check tolerance  
cm3/1000S. : ± 3.0  
Spreed  
Tolerance  
cm3/1000 strokes : 3.5  
Check tolerance  
cm3/1000S. : 8.0

Del. quantity  
cm3/1000 strokes : 12.0  
Tolerance  
cm3/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm3/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm3/1000 strokes : 5.5  
Check tolerance  
cm3/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800  
Rack travel in mm : 0.65  
Tolerance mm :  $\pm$  0.35

governor spring  
pre-tension  
click setting x : 5.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : -  
Del. quantity  
cm3/1000 strokes : 63.5  
Tolerance  
cm3/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm3/1000S. :  $\pm$  3.0  
Spreed  
Tolerance  
cm3/1000 strokes : 3.5  
Check tolerance  
cm3/1000S. : 8.0

##### CONTROL LEVER

control lever  
position degree : 110.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 7.60  
Rated speed rpm : 1295

Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00  
Rated speed rpm : 1347  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1500

##### LOW IDLE

control lever  
position degree : 82.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 6.50

##### Testing:

Rated speed rpm : 350  
rack travel mm : 7.00  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 475  
Tolerance 1/min :  $\pm$  30

Rated speed rpm : 100

CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 8.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 8.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400  
rack travel mm : 10.10  
Tolerance mm :  $\pm$  0.30

##### BREAKAWAY

Rack travel in mm : 7.60  
Rated speed rpm : 1295  
Tolerance 1/min : +- 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.20  
Tolerance mm : +- 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 101.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 7.5  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 10.0

---

LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 374  
Injection pump  
Pump designation : PES6A95D410RS2772  
EP type number : 9 400 084 018  
Governor  
Governor design. : RSV350...1250A0C1170  
: L  
Governor no. : 9 420 083 297  
Cust. part No. :

Customer-spec. information  
Customer : MBB  
Motor : OM 366 A  
Power KW : 121.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 015  
Outside diameter : 6.0

J24

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300

## BASIC SETTING

Rated speed rpm : 1250  
Rack travel in mm : 9.65  
Tolerance mm : ± 0.05  
Del. quantity  
cm3/1000 strokes : 82.0  
Tolerance  
cm3/1000 strokes : ± 1.0  
Check tolerance  
cm3/1000S. : ± 3.0  
Spreed  
Tolerance  
cm3/1000 strokes : 3.5  
Check tolerance  
cm3/1000S. : 8.0

Del. quantity  
cm3/1000 strokes : 15.0  
Tolerance  
cm3/1000 strokes : + 2.0  
Check tolerance  
cm3/1000S. : + 5.0  
Spreed  
Tolerance  
cm3/1000 strokes : 5.5  
Check tolerance  
cm3/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800  
Rack travel in mm : 0.65  
Tolerance mm : + 0.35

governor spring  
pre-tension  
click setting x : 3.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : -  
Del. quantity  
cm3/1000 strokes : 82.0  
Tolerance  
cm3/1000 strokes : + 1.0  
Check tolerance  
cm3/1000S. : + 3.0  
Spreed  
Tolerance  
cm3/1000 strokes : 3.5  
Check tolerance  
cm3/1000S. : 8.0

CONTROL LEVER

control lever  
position degree : 103.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 8.60  
Rated speed rpm : 1295

Tolerance 1/min : + 5  
rack travel mm : 4.00  
Rated speed rpm : 1340  
Tolerance 1/min : + 15  
rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 1500

LOW IDLE

control lever  
position degree : 75.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 6.30

Testing:

Rated speed rpm : 350  
rack travel mm : 6.80  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 450  
Tolerance 1/min : + 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 9.65  
Tolerance mm : + 0.05

Rated speed rpm : 800  
rack travel mm : 9.65  
Tolerance mm : + 0.05

Rated speed rpm : 500  
rack travel mm : 9.70  
Tolerance mm : + 0.10

Rated speed rpm : 400  
rack travel mm : 11.10  
Tolerance mm : + 0.30

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 74.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### BREAKAWAY

Rack travel in mm : 8.60  
Rated speed rpm : 1295  
Tolerance 1/min : ± 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.00  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 13.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 375  
Injection pump  
Pump designation : PES6A95D410RS2812  
EP type number : 9 400 084 028  
Governor  
Governor design. : RSV350...1250A8C808L  
Governor no. : 9 420 083 298

Cust. part No. : 9.0520.05.6.9506

Customer-spec. information  
Customer : MWM  
Motor : 6.10 TCA  
Power KW : 158.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.80  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery difference

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 2.00

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 119.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

Spreed  
Tolerance  
cm3/1000 strokes : 3.5

---

Check tolerance  
cm3/1000S. : 8.0

Del. quantity  
cm3/1000 strokes : 20.5  
Tolerance  
cm3/1000 strokes : + 2.0  
Check tolerance  
cm3/1000S. : + 4.5

Spreed  
Tolerance  
cm3/1000 strokes : 5.5  
Check tolerance  
cm3/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : + 0.35

governor spring  
pre-tension  
click setting x : 4.00

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : -  
Del. quantity  
cm3/1000 strokes : 119.5  
Tolerance  
cm3/1000 strokes : + 1.0  
Check tolerance  
cm3/1000S. : + 3.0  
Spreed  
Tolerance  
cm3/1000 strokes : 3.5  
Check tolerance  
cm3/1000S. : 8.0

---

##### CONTROL LEVER

control lever  
position degree : 107.0  
tolerance degree : +- 4.0

##### RATED SPEED

rack travel mm : 12.30  
Rated speed rpm : 1305  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1360  
Tolerance 1/min : +- 15

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1500

---

##### LOW IDLE

control lever  
position degree : 65.0  
tolerance degree : +- 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 6.00

##### Testing:

Rated speed rpm : 350  
rack travel mm : 6.50  
Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 435  
Tolerance 1/min : +- 30

Rated speed rpm : 100

CRT mm min. : > 19.00

---

##### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 13.35  
Tolerance mm : +- 0.05

Rated speed rpm : 600  
rack travel mm : 13.35  
Tolerance mm : +- 0.05

Rated speed rpm : 400  
rack travel mm : 14.80

Tolerance mm :  $\pm$  0.30

---

#### BREAKAWAY

Rack travel in mm : 12.30  
Rated speed rpm : 1305  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 156.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 376  
Injection pump  
Pump designation : PES4A95D32ORS2807  
EP type number : 0 410 894 994  
Governor  
Governor design. : RSV375...1150A2C2282  
: R  
Governor no. : 9 420 083 302  
Cust. part No. :

Customer-spec. information  
Customer : VALMET  
Motor : 420 DS  
Power KW : 77.2

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : +- 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

K02

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0

Prestroke mm : 2.40  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10

Rack travel in mm : 10.50  
Tolerance mm : +- 1.50

Firing order : 1- 2- 4- 3

Phasing : 0-90-180-270

Beginning of delivery difference

and maximum rack  
travel : 10.50  
Tolerance mm : +- 1.50  
Difference ° CS : 5.00

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 12.25  
Tolerance mm : +- 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 101.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0

Speed

Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 8.0

Del. quantity  
cm3/1000 strokes : 20.0

Tolerance  
cm3/1000 strokes : ± 2.0

Check tolerance  
cm3/1000S. : ± 4.5

Spread  
Tolerance  
cm3/1000 strokes : 5.5

Check tolerance  
cm3/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : ± 0.35

governor spring  
pre-tension  
click setting x : 5.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150

Aneroid pressure  
hPa : -

Del. quantity  
cm3/1000 strokes : 101.0

Tolerance  
cm3/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : ± 3.0

Spread  
Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 8.0

##### CONTROL LEVER

control lever  
position degree : 51.0  
tolerance degree : ± 4.0

K03

control lever  
position degree : 101.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 11.20  
Rated speed rpm : 1195  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1290  
Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1400

##### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree : ± 4.0

control lever  
position degree : 25.0  
tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 375  
rack travel mm : 5.10

##### Testing:

Rated speed rpm : 375  
rack travel mm : 5.60  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 495  
Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.50

##### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 12.25  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
rack travel mm : 12.75

Tolerance mm :  $\pm$  0.05  
Rated speed rpm : 700  
rack travel mm : 12.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 12.45  
Tolerance mm :  $\pm$  0.05

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 101.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 11.20  
Rated speed rpm : 1195  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 202.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed

K04

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 378  
Injection pump  
Pump designation : PES6A100D320/3RS2827  
EP type number : 9 400 084 030  
Governor  
Governor design. : RSV400...900A7C2209  
: -4R  
Governor no. : 9 420 083 301  
Cust. part No. : 3355291

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 CTA 240  
Power KW : 180.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : + 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

K05

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0

Prestroke mm : 2.65  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10

Rack travel in mm : 10.50  
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery difference

and maximum rack  
travel : 10.50  
Tolerance mm : + 1.50  
Difference ° CS : 4.00

## BASIC SETTING

Rated speed rpm : 880

Rack travel in mm : 13.25  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 159.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

Spreed	
Tolerance	
cm3/1000 strokes :	3.5

Check tolerance	
cm3/1000S. :	8.0

Del. quantity	
cm3/1000 strokes :	11.0
Tolerance	
cm3/1000 strokes :	+ 2.0
Check tolerance	
cm3/1000S. :	+ 4.5

Spreed	
Tolerance	
cm3/1000 strokes :	5.5
Check tolerance	
cm3/1000S. :	9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm :	800
-------------------	-----

Rack travel in mm :	0.65
Tolerance mm :	+ 0.35

governor spring	
pre-tension	
click setting x :	5.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	880
Aneroid pressure	
hPa :	-
Del. quantity	
cm3/1000 strokes :	159.5
Tolerance	
cm3/1000 strokes :	+ 1.0
Check tolerance	
cm3/1000S. :	+ 3.0
Spreed	
Tolerance	
cm3/1000 strokes :	3.5
Check tolerance	
cm3/1000S. :	8.0

##### CONTROL LEVER

control lever	
position degree :	107.0
tolerance degree :	+ 4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm :	923
rack travel mm :	12.20

Rated speed rpm :	963
Tolerance 1/min :	+ 4
rack travel mm :	4.00

rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	1100

Rated speed rpm :	924
rack travel mm :	12.20

Rated speed rpm :	964
Tolerance 1/min :	+ 4
rack travel mm :	4.00

rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	1100

Rated speed rpm :	925
rack travel mm :	12.20

Rated speed rpm :	965
Tolerance 1/min :	+ 4
rack travel mm :	4.00

rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	1100

Rated speed rpm :	926
rack travel mm :	12.20

Rated speed rpm :	966
Tolerance 1/min :	+ 4
rack travel mm :	4.00

rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	1100

Rated speed rpm :	927
rack travel mm :	12.20

Rated speed rpm :	967
Tolerance 1/min :	+ 4
rack travel mm :	4.00

rack travel mm :	0.85
------------------	------



Tolerance mm :  $\pm$  0.55  
 Rated speed rpm : 1100  
  
 Rated speed rpm : 928  
 rack travel mm : 12.20  
  
 Rated speed rpm : 968  
 Tolerance 1/min :  $\pm$  4  
 rack travel mm : 4.00  
  
 rack travel mm : 0.85  
 Tolerance mm :  $\pm$  0.55  
 Rated speed rpm : 1100

#### LOW IDLE

control lever  
 position degree : 77.0  
 tolerance degree :  $\pm$  4.0  
  
 Setting point w/out bumper spring  
  
 Rated speed rpm : 400  
 rack travel mm : 3.50  
  
 Testing:  
  
 Rated speed rpm : 400  
 rack travel mm : 4.00  
 Tolerance mm :  $\pm$  0.10  
  
 rack travel mm : 2.00  
 Rated speed rpm : 435  
 Tolerance 1/min :  $\pm$  30  
  
 Rated speed rpm : 100  
  
 CRT mm min. :  $>$  19.00

#### TORQUE CONTROL

Rated speed rpm : 880  
 rack travel mm : 13.25  
 Tolerance mm :  $\pm$  0.05  
  
 Rated speed rpm : 500  
 rack travel mm : 13.30  
 Tolerance mm :  $\pm$  0.10  
  
 Rated speed rpm : 350  
 rack travel mm : 14.40  
 Tolerance mm :  $\pm$  0.30

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
 rack travel mm : 20.00  
 Tolerance mm :  $\pm$  1.00  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 166.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  11.0

#### LOW IDLE

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 11.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.5  
 Speed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 378EE  
Injection pump  
Pump designation : PES6A100b320/3RS2827  
EP type number : 9 400 084 030  
Governor  
Governor design. : RSV400...900A7C2209  
Governor no. : 9 420 083 301  
Cust. part No. : 3355523-VERSA0-44

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 CTA 240  
Power KW : 155.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

K08

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery difference

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 4.00

## BASIC SETTING

Rated speed rpm : 720

Rack travel in mm : 13.25  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spreed	
Tolerance	
cm3/1000 strokes :	3.5

Check tolerance	
cm3/1000S. :	8.0

Del. quantity	
cm3/1000 strokes :	11.0
Tolerance	
cm3/1000 strokes :	+ 2.0
Check tolerance	
cm3/1000S. :	+ 4.5

Spreed	
Tolerance	
cm3/1000 strokes :	5.5
Check tolerance	
cm3/1000S. :	9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm :	800
-------------------	-----

Rack travel in mm :	0.65
Tolerance mm :	+ 0.35

governor spring	
pre-tension	
click setting x :	5.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	720
Aneroid pressure	
hPa :	-
Del. quantity	
cm3/1000 strokes :	165.0
Tolerance	
cm3/1000 strokes :	+ 1.0
Check tolerance	
cm3/1000S. :	+ 3.0
Spreed	
Tolerance	
cm3/1000 strokes :	3.5
Check tolerance	
cm3/1000S. :	8.0

CONTROL LEVER

control lever	
position degree :	97.0
tolerance degree :	+ 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm :	756
rack travel mm :	12.20

Rated speed rpm :	803
Tolerance 1/min :	+ 4
rack travel mm :	4.00

rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	900

Rated speed rpm :	757
rack travel mm :	12.20

Rated speed rpm :	804
Tolerance 1/min :	+ 4
rack travel mm :	4.00

rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	900

Rated speed rpm :	758
rack travel mm :	12.20

Rated speed rpm :	805
Tolerance 1/min :	+ 4
rack travel mm :	4.00

rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	900

Rated speed rpm :	759
rack travel mm :	12.20

Rated speed rpm :	806
Tolerance 1/min :	+ 4
rack travel mm :	4.00

rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	900

Rated speed rpm :	760
rack travel mm :	12.20

Rated speed rpm :	807
Tolerance 1/min :	+ 4
rack travel mm :	4.00

rack travel mm :	0.85
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Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 900  
  
Rated speed rpm : 761  
rack travel mm : 12.20  
  
Rated speed rpm : 808  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00  
  
rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 900

---

#### LOW IDLE

control lever  
position degree : 77.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 3.50

Testing:

Rated speed rpm : 400  
rack travel mm : 4.00  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 425  
Tolerance 1/min :  $\pm$  30

Rated speed rpm : 100

CRT mm min. :  $>$  19.00

---

#### TORQUE CONTROL

Rated speed rpm : 720  
rack travel mm : 13.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 550  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 410  
rack travel mm : 14.70  
Tolerance mm :  $\pm$  0.30

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 166.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.04.96  
Test oil : ISO 4113

Combination No. : 9 400 085 379

Injection pump  
Pump designation : PES6A95D410RS2772  
EP type number : 9 400 084 018

Governor  
Governor design. : RQV300...1300AB1277L  
Governor no. : 9 420 080 355

Cust. part No. :

Customer-spec. information  
Customer : MBB  
Motor : OM 366 A  
Power KW : 125.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 10.55  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 91.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Del. quantity	
cm <sup>3</sup> /1000 strokes	: 11.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 2.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.5
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.5
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 300
guide sleeve	
travel mm	: 1.05
Tolerance mm	: ± 0.25

Rated speed rpm	: 1500
guide sleeve	
travel mm	: 8.55
Tolerance mm	: ± 0.05

Rated speed rpm	: 500
guide sleeve	
travel mm	: 2.55
Tolerance mm	: ± 0.25

Rated speed rpm	: 750
guide sleeve	
travel mm	: 4.20
Tolerance mm	: ± 0.10

GUIDE SLEEVE POSITION

Rated speed rpm	: 1500
Rack travel in mm	: 16.50
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1300
Aneroid pressure	
hPa	: 800
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 91.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 3.0

Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 3.5
Check tolerance	
cm <sup>3</sup> /1000S.	: 8.0

CONTROL LEVER

control lever	
position degree	: 108.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 9.50
Rated speed rpm	: 1350
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1475
Tolerance 1/min	: ± 15

rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1650

LOW IDLE

control lever	
position degree	: 68.0
tolerance degree	: ± 4.0

Testing:

Rated speed rpm	: 300
rack travel mm	: 7.00
Tolerance mm	: ± 0.10

Rated speed rpm	: 100
CRT mm min.	: > 8.00

Rated speed rpm	: 325
-----------------	-------

TORQUE CONTROL

Rated speed rpm	: 1300
rack travel mm	: 10.55
Tolerance mm	: ± 0.05

Rated speed rpm	: 800
rack travel mm	: 11.25
Tolerance mm	: ± 0.05

Rated speed rpm : 1000  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 800  
rack travel mm : 11.45  
Tolerance mm :  $\pm$  0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
  
Rated speed rpm : 500  
  
Pressure hPa : 500  
rack travel mm : 1.20  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 310  
rack travel mm : 0.45  
Tolerance mm :  $\pm$  0.05

---

START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  220  
  
Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  240

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 800  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 89.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : 800  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 91.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 62.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

BREAKAWAY

Rack travel in mm : 9.50  
Rated speed rpm : 1350  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 82.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

End of test specification sheet





# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 380  
Injection pump  
Pump designation : PES6A95D120RS2834  
EP type number : 9 400 084 032  
Governor  
Governor design. : RSV400...1250A8C2284  
: R  
Governor no. : 9 420 083 303  
Cust. part No. : 3356006

Customer-spec. information  
Customer : CUMMINS  
Motor : 6BT  
Power KW : 112.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

K15

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.80  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery difference

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 2.50

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.65  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 93.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

<hr/>	
Speed	
Tolerance	
cm <sup>3</sup> /1000 strokes :	3.5
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S. :	8.0
<hr/>	
Del. quantity	
cm <sup>3</sup> /1000 strokes :	11.0
Tolerance	
cm <sup>3</sup> /1000 strokes :	+ 2.0
Check tolerance	
cm <sup>3</sup> /1000S. :	+ 4.5
Speed	
Tolerance	
cm <sup>3</sup> /1000 strokes :	5.5
Check tolerance	
cm <sup>3</sup> /1000S. :	9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

Rated speed rpm :	800
<hr/>	
Rack travel in mm :	0.65
Tolerance mm :	+ 0.35
<hr/>	
governor spring	
pre-tension	
click setting x :	5.00

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1250
Aneroid pressure	
hPa :	-
Del. quantity	
cm <sup>3</sup> /1000 strokes :	93.0
Tolerance	
cm <sup>3</sup> /1000 strokes :	+ 1.0
Check tolerance	
cm <sup>3</sup> /1000S. :	+ 3.0
Speed	
Tolerance	
cm <sup>3</sup> /1000 strokes :	3.5
Check tolerance	
cm <sup>3</sup> /1000S. :	8.0

---

CONTROL LEVER

control lever	
position degree :	111.0
tolerance degree :	+ 4.0

RATED SPEED

rack travel mm :	10.60
Rated speed rpm :	1300
Tolerance 1/min :	+ 5
<hr/>	
rack travel mm :	4.00
Rated speed rpm :	1355
Tolerance 1/min :	+ 15
<hr/>	
rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	1450

---

LOW IDLE

control lever	
position degree :	72.0
tolerance degree :	+ 4.0

Setting point w/out bumper spring

Rated speed rpm :	400
rack travel mm :	4.50

Testing:

Rated speed rpm :	400
rack travel mm :	5.00
Tolerance mm :	+ 0.10
<hr/>	
rack travel mm :	2.00
Rated speed rpm :	505
Tolerance 1/min :	+ 30
<hr/>	
Rated speed rpm :	100
CRT mm min. :	> 19.00

---

TORQUE CONTROL

Rated speed rpm :	1250
rack travel mm :	11.65
Tolerance mm :	+ 0.05
<hr/>	
Rated speed rpm :	500
rack travel mm :	11.70
Tolerance mm :	+ 0.10
<hr/>	
Rated speed rpm :	750
rack travel mm :	11.65

Tolerance mm :  $\pm$  0.05  
Rated speed rpm : 400  
rack travel mm : 12.40  
Tolerance mm :  $\pm$  0.30

---

End of test specification sheet

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 92.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 10.60  
Rated speed rpm : 1300  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  13.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 380FB  
Injection pump  
Pump designation : PES6A95D120RS2834  
EP type number : 9 400 084 032  
Governor  
Governor design. : RSV400...1250A8C2284  
: R  
Governor no. : 9 420 083 303  
Cust. part No. : 3356187-VERSA051

Customer-spec. information  
Customer : CUMMINS  
Motor : 6BT  
Power KW : 100.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.80  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300

Beginning of delivery differende  
and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 2.50

## BASIC SETTING

Rated speed rpm : 1150  
Rack travel in mm : 10.75  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

Spreed  
Tolerance  
cm3/1000 strokes : 3.5

---

Check tolerance  
cm3/1000S. : 8.0

---

Del. quantity  
cm3/1000 strokes : 11.0  
Tolerance  
cm3/1000 strokes : + 2.0  
Check tolerance  
cm3/1000S. : + 4.5

Spreed  
Tolerance  
cm3/1000 strokes : 5.5  
Check tolerance  
cm3/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800  
Rack travel in mm : 0.65  
Tolerance mm : + 0.35

governor spring  
pre-tension  
click setting x : 5.00

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : -  
Del. quantity  
cm3/1000 strokes : 83.0  
Tolerance  
cm3/1000 strokes : + 1.0  
Check tolerance  
cm3/1000S. : + 3.0  
Spreed  
Tolerance  
cm3/1000 strokes : 3.5  
Check tolerance  
cm3/1000S. : 8.0

---

##### CONTROL LEVER

control lever  
position degree : 55.0  
tolerance degree : + 4.0

control lever  
position degree : 105.0  
tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 9.70  
Rated speed rpm : 1195  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1245  
Tolerance 1/min : + 15

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1350

---

##### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : + 4.0

control lever  
position degree : 24.0  
tolerance degree : + 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 450  
rack travel mm : 4.40

##### Testing:

Rated speed rpm : 450  
rack travel mm : 4.90  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 540  
Tolerance 1/min : + 30

Rated speed rpm : 100

CRT mm min. : > 19.00

---

##### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 10.75

Tolerance mm :  $\pm$  0.05  
Rated speed rpm : 630  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 400  
rack travel mm : 11.70  
Tolerance mm :  $\pm$  0.30

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 78.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 9.70  
Rated speed rpm : 1195  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  13.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 381  
Injection pump  
Pump designation : PES6A100D120RS2868  
EP type number : 9 400 084 037  
Governor  
Governor design. : RSV450...1200AQC2289  
: R  
Governor no. : 9 420 083 304  
Cust. part No. : 3927763

Customer-spec. information  
Customer : CUMMINS  
Motor : 6BT  
Power KW : 81.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.90  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery difference

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 3.50

## BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 8.75  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.5

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm : +- 0.20

governor spring  
pre-tension  
click setting x : 5.75

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200

Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

##### CONTROL LEVER

control lever  
position degree : 112.0  
tolerance degree : +- 4.0

##### RATED SPEED

rack travel mm : 7.70  
Rated speed rpm : 1245  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1310  
Tolerance 1/min : +- 15

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1400

##### LOW IDLE

control lever  
position degree : 87.0  
tolerance degree : +- 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 5.10

##### Testing:

Rated speed rpm : 350  
rack travel mm : 5.60  
Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 505  
Tolerance 1/min : +- 30

Rated speed rpm : 100

CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 1200  
rack travel mm : 8.75  
Tolerance mm : +- 0.05

Rated speed rpm : 650  
rack travel mm : 9.05  
Tolerance mm : +- 0.05

Rated speed rpm : 880  
rack travel mm : 9.05



Tolerance mm :  $\pm$  0.05  
Rated speed rpm : 1030  
rack travel mm : 8.75  
Tolerance mm :  $\pm$  0.05

End of test specification sheet

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 82.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 7.70  
Rated speed rpm : 1245  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 168.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.04.96  
Test oil : ISO 4113

Combination No. : 9 400 085 383

Injection pump  
Pump designation : PES6A95D410RS2772  
EP type number : 9 400 084 018

Governor  
Governor design. : RQV300...1300AB1066  
: -13L  
Governor no. : 9 420 080 332

Cust. part No. :

Customer-spec. information  
Customer : MBB  
Motor : OM 366 LA-EURO 1  
Power KW : 147.1

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

K24

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 11.45  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 104.0

Tolerance  
cm3/1000 strokes : ± 0.5

Check tolerance  
cm3/1000S. : ± 2.5

Speed  
Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 8.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.05  
Tolerance mm : ± 0.25

Rated speed rpm : 1500  
guide sleeve  
travel mm : 8.55  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
guide sleeve  
travel mm : 2.55  
Tolerance mm : ± 0.25

Rated speed rpm : 750  
guide sleeve  
travel mm : 4.20  
Tolerance mm : ± 0.10

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1500

Rack travel in mm : 16.50  
Tolerance mm : ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 104.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

##### CONTROL LEVER

control lever  
position degree : 60.0  
tolerance degree : ± 4.0

control lever  
position degree : 109.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 10.60  
Rated speed rpm : 1360  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1505  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1650

##### LOW IDLE

control lever  
position degree : 68.0  
tolerance degree : ± 4.0

control lever  
position degree : 19.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 300  
rack travel mm : 7.00  
Tolerance mm : ± 0.10

Rated speed rpm : 100  
CRT mm min. : > 8.00

Rated speed rpm : 375

##### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 11.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 11.45  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 11.45  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
  
Rated speed rpm : 500

Pressure hPa : 340  
rack travel mm : 0.40  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 560  
rack travel mm : 1.35  
Tolerance mm :  $\pm$  0.05

---

##### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 94.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 60.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

##### BREAKAWAY

Rack travel in mm : 10.60  
Rated speed rpm : 1360  
Tolerance 1/min :  $\pm$  5

---

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

##### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.04.96  
Test oil : ISO 4113  
  
Combination No. : 9 400 085 384  
  
Injection pump  
Pump designation : PES4A95D410RS2887  
EP type number : 9 400 084 040  
  
Governor  
Governor design. : RQV300...1300AB1307L  
Governor no. : 9 420 080 385  
  
Cust. part No. : 0260745402

Customer-spec. information  
Customer : MBB  
Motor : OM 364A/ EURO I  
Power KW : 81.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 419 992 198  
  
Inlet press. bar : 1.5  
  
Test nozzle holder  
assembly : 0 681 343 009  
  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 015  
  
Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 2.95  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 16.00  
Tolerance mm : ± 1.50  
  
Firing order : 1- 3- 4- 2  
  
Phasing : 0-90-180-270

## BASIC SETTING

Rated speed rpm : 1300  
  
Rack travel in mm : 10.85  
Tolerance mm : ± 0.05  
  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 85.0  
  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 9.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.05  
Tolerance mm : + 0.25

Rated speed rpm : 1500  
guide sleeve  
travel mm : 9.15  
Tolerance mm : + 0.05

Rated speed rpm : 500  
guide sleeve  
travel mm : 2.55  
Tolerance mm : + 0.25

Rated speed rpm : 750  
guide sleeve  
travel mm : 4.20  
Tolerance mm : + 0.10

GUIDE SLEEVE POSITION

Rated speed rpm : 1440

Rack travel in mm : 16.50  
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
Aneroid pressure  
hPa : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 85.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0  
Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

CONTROL LEVER

control lever  
position degree : 61.0  
tolerance degree : + 4.0

control lever  
position degree : 109.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 9.80  
Rated speed rpm : 1345  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1460  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1580

LOW IDLE

control lever  
position degree : 70.0  
tolerance degree : + 4.0

control lever  
position degree : 21.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 8.00  
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 9.00

Rated speed rpm : 415

TORQUE CONTROL

Rated speed rpm : 1300

rack travel mm : 10.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 11.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 11.15  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 700  
rack travel mm : 11.55  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 300  
rack travel mm : 0.35  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 350  
rack travel mm : 0.70  
Tolerance mm :  $\pm$  0.10

---

##### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 700  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 82.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 58.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  3.0

---

##### BREAKAWAY

Rack travel in mm : 9.80  
Rated speed rpm : 1345  
Tolerance 1/min :  $\pm$  5

---

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  10.0

---

##### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 9.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 08.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 030 752  
Injection pump  
Pump designation : PES4A95D320/3RS2880  
EP type number : 9 410 037 214  
Governor  
Governor design. : RSV475...1100A0C867R  
Governor no. : F 002 A20 203

Cust. part No. : 3930151

Customer-spec. information  
Customer : CUMMINS  
Motor : 4BT  
Power KW : 66.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-240

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.50  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 92.8

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5



Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800  
  
Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20  
  
governor spring  
pre-tension  
click setting x : 4.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 92.8  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

##### CONTROL LEVER

control lever  
position degree : 105.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 11.50  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

L03

rack travel mm : 4.00  
Rated speed rpm : 1250

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

rack travel mm : 4.00  
Rated speed rpm : 1260

##### LOW IDLE

control lever  
position degree : 87.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 475  
rack travel mm : 6.35

##### Testing:

Rated speed rpm : 475  
rack travel mm : 6.85  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.50  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 13.15  
Tolerance mm :  $\pm$  0.20

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 99.6  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

#### BREAKAWAY

Rack travel in mm : 11.50  
Rated speed rpm : 1145  
Tolerance 1/min : +- 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : +- 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 15.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.04.96  
Test oil : ISO 4113  
Combination No. : 0 402 076 779  
Injection pump  
Pump designation : PES6P120A720RS3352  
EP type number : 0 412 026 780  
Governor  
Governor design. : RSV400...900P4A611  
Governor no. : 0 421 833 489

Cust. part No. : RE63767

Customer-spec. information  
Customer : DEERE  
Motor : 6081AF001  
Power KW : 150.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 457 413 010  
Inlet press. bar : 2.0  
Test nozzle holder  
assembly : 1 688 901 103  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 015  
Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

°NW after s.o.d. : 7.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## Beginning of delivery difference

and maximum rack  
travel : 14.00  
Difference °CS : 2.50

## BASIC SETTING

Rated speed rpm : 800

---

Rack travel in mm : 13.90  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 219.5

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 4.75

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 800  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 219.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

L06

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

---

##### CONTROL LEVER

control lever  
position degree : 100.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 12.90  
Rated speed rpm : 910  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 950  
Tolerance 1/min :  $\pm$  5

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1020

rack travel mm : 4.00  
Rated speed rpm : 970

---

##### LOW IDLE

control lever  
position degree : 77.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 4.65

##### Testing:

Rated speed rpm : 400  
rack travel mm : 5.15  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100  
CRT mm min. : > 19.00

---

##### TORQUE CONTROL

Rated speed rpm : 800  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm : > 100

Check  
speed 1/min : > 80

---

#### BREAKAWAY

Rack travel in mm : 12.90  
Rated speed rpm : 910  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.04.96  
Test oil : ISO 4113  
Combination No. : 0 402 076 780  
Injection pump  
Pump designation : PES6P120A720RS3352  
EP type number : 0 412 026 780

Governor  
Governor design. : RSV400...900P4A606  
Governor no. : 0 421 833 490

Cust. part No. : RE62644

Customer-spec. information  
Customer : DEERE  
Motor : 6081AF001  
Power KW : 150.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 457 413 010  
Inlet press. bar : 2.0  
Test nozzle holder  
assembly : 1 688 901 103  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 015  
Outside diameter : 6.0

L08

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

°NW after s.o.d. : 7.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## Beginning of delivery difference

and maximum rack  
travel : 14.00  
Difference °CS : 2.50

## BASIC SETTING

Rated speed rpm : 800

---

Rack travel in mm : 13.90  
Tolerance mm : +- 0.05

---

Del. quantity  
cm3/1000 strokes : 219.5

---

Tolerance  
cm3/1000 strokes : +- 1.0

---

Check tolerance  
cm3/1000S. : +- 3.0

---

Speed  
Tolerance  
cm3/1000 strokes : 4.0

---

Check tolerance  
cm3/1000S. : 6.5

---

Del. quantity  
cm3/1000 strokes : 25.5

Tolerance  
cm3/1000 strokes : +- 3.0

Check tolerance  
cm3/1000S. : +- 5.0

Speed  
Tolerance  
cm3/1000 strokes : 6.0

Check tolerance  
cm3/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : +- 0.20

governor spring  
pre-tension  
click setting x : 4.75

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 800  
Aneroid pressure  
hPa : -  
Del. quantity  
cm3/1000 strokes : 219.5  
Tolerance  
cm3/1000 strokes : +- 1.0

L09

Check tolerance  
cm3/1000S. : +- 3.0  
Speed  
Tolerance  
cm3/1000 strokes : 4.0  
Check tolerance  
cm3/1000S. : 6.5

---

##### CONTROL LEVER

control lever  
position degree : 100.0  
tolerance degree : +- 4.0

##### RATED SPEED

rack travel mm : 12.90  
Rated speed rpm : 910  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 950  
Tolerance 1/min : +- 5

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1020

rack travel mm : 4.00  
Rated speed rpm : 970

---

##### LOW IDLE

control lever  
position degree : 77.0  
tolerance degree : +- 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 4.65

##### Testing:

Rated speed rpm : 400  
rack travel mm : 5.15  
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

---

##### TORQUE CONTROL

Rated speed rpm : 800  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80

---

#### BREAKAWAY

Rack travel in mm : 12.90  
Rated speed rpm : 910  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.04.96  
Test oil : ISO 4113

Combination No. : 0 402 736 865

Injection pump  
Pump designation : PES6P120A120RS7349  
EP type number : 0 412 726 920

Governor  
Governor design. : RQV400...1150PA1170K  
Governor no. : 0 421 815 436

Cust. part No. : 3928148

Customer-spec. information  
Customer : CDC  
Motor : 6BTA-A  
Power KW : 156.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 12.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 6.25  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 177.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 177.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### CONTROL LEVER

control lever  
position degree : 118.0  
tolerance degree : ± 6.0

#### RATED SPEED

rack travel mm : 13.10  
Rated speed rpm : 1315  
Tolerance 1/min : ± 15

rack travel mm : 4.00  
Rated speed rpm : 1480  
Tolerance 1/min : ± 5

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1600

#### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree : ± 6.0

#### Testing:

Rated speed rpm : 420  
rack travel mm : 5.80  
Tolerance mm : ± 0.20

Rated speed rpm : 300

CRT mm min. : > 8.80

Rated speed rpm : 420

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 14.35  
Tolerance mm : ± 0.05

Rated speed rpm : 800  
rack travel mm : 12.60  
Tolerance mm : ± 0.20

Rated speed rpm : 1250  
rack travel mm : 14.20  
Tolerance mm : ± 0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1150  
Pressure hPa : 1200

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1150  
rack travel mm : 10.30  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1150

Pressure hPa : 685  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.30

Pressure hPa : 425  
rack travel mm : 11.45  
Tolerance mm :  $\pm$  0.20

---

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  315

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  325

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 146.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1150  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 96.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 13.10

L13

Rated speed rpm : 1315  
Tolerance 1/min :  $\pm$  15

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 12.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.04.96  
Test oil : ISO 4113  
  
Combination No. : 0 402 736 867  
  
Injection pump  
Pump designation : PES6P120A120RS7350  
EP type number : 0 412 726 921  
  
Governor  
Governor design. : RQV400...1150PA1172K  
Governor no. : 0 421 815 438

Cust. part No. : 3928147

Customer-spec. information  
Customer : CDC  
Motor : 6BTA-A  
Power KW : 142.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 2 417 413 086  
  
Inlet press. bar : 2.0  
Tolerance bar : ± 0.1  
  
Test nozzle holder  
assembly : 1 688 901 103  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 015  
  
Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 12.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 5.75  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 167.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150

Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 167.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### CONTROL LEVER

control lever  
position degree : 118.0  
tolerance degree : ± 6.0

#### RATED SPEED

rack travel mm : 13.00  
Rated speed rpm : 1310  
Tolerance 1/min : ± 15

rack travel mm : 4.00  
Rated speed rpm : 1475  
Tolerance 1/min : ± 5

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1550

#### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree : ± 6.0

#### Testing:

Rated speed rpm : 420  
rack travel mm : 6.50  
Tolerance mm : ± 0.20

Rated speed rpm : 300

CRT mm min. : > 8.90

Rated speed rpm : 420

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 14.35  
Tolerance mm : ± 0.05

Rated speed rpm : 800  
rack travel mm : 12.90  
Tolerance mm : ± 0.20

Rated speed rpm : 1250  
rack travel mm : 14.20  
Tolerance mm : ± 0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1150  
Pressure hPa : 1200

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1150  
rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1150

Pressure hPa : 500  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.30

Pressure hPa : 375  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.20

---

#### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 315

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 325

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 141.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1150  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 13.00

Rated speed rpm : 1310  
Tolerance 1/min :  $\pm$  15

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.00  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 04.04.96  
Test oil : ISO 4113

Combination No. : 0 402 736 906

Injection pump  
Pump designation : PES6P120A120RS7416  
EP type number : 0 412 726 959

Governor  
Governor design. : RQV400...1250PA1060  
                  : -4K  
Governor no. : 0 421 815 514

Cust. part No. : 3928146

Customer-spec. information  
Customer : CDC  
Motor : 6BTA-A  
Power kW : 130.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0  
x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
                  : 4

Phasing : 0-60-120-180-240  
          : -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

°NW after s.o.d. : 6.25  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.65  
Tolerance mm : ± 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	: 160.5
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
Spreed Tolerance cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance cm <sup>3</sup> /1000S.	: 12.0
Rated speed rpm	: 420
Rack travel in mm	: 6.00
Tolerance mm	: ± 0.20
Del. quantity cm <sup>3</sup> /1000 strokes	: 15.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 3.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 5.0
Spreed Tolerance cm <sup>3</sup> /1000 strokes	: 4.0
Check tolerance cm <sup>3</sup> /1000S.	: 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 400
guide sleeve travel mm	: 1.44
Tolerance mm	: ± 0.20
Rated speed rpm	: 1329
guide sleeve travel mm	: 7.83
Tolerance mm	: ± 0.15
Rated speed rpm	: 939
guide sleeve travel mm	: 5.18
Tolerance mm	: ± 0.25
Rated speed rpm	: 640
guide sleeve travel mm	: 3.56
Tolerance mm	: ± 0.25

Rated speed rpm	: 1690
guide sleeve travel mm	: 11.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 1390
Rack travel in mm	: 12.60

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1250
Aneroid pressure hPa	: 1200
Del. quantity cm <sup>3</sup> /1000 strokes	: 160.5
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
Spreed Tolerance cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance cm <sup>3</sup> /1000S.	: 12.0

CONTROL LEVER

control lever position degree	: 117.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 12.60
Rated speed rpm	: 1325
Tolerance 1/min	: ± 15
rack travel mm	: 4.00
Rated speed rpm	: 1475
Tolerance 1/min	: ± 5
rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1550

LOW IDLE

control lever position degree	: 71.0
tolerance degree	: ± 4.0



### Testing:

Rated speed rpm : 420  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300  
CRT mm min. :  $>$  5.80  
Rated speed rpm : 425

### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 13.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 11.60  
Tolerance mm :  $\pm$  0.20

### ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 1250  
Pressure hPa : 1200

### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1250  
rack travel mm : 10.60  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1250  
Pressure hPa : 375  
rack travel mm : 12.70  
Tolerance mm :  $\pm$  0.30

Pressure hPa : 260  
rack travel mm : 11.60  
Tolerance mm :  $\pm$  0.20

### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  280

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  290

### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 131.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1250  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 111.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

### BREAKAWAY

Rack travel in mm : 12.60  
Rated speed rpm : 1325  
Tolerance 1/min :  $\pm$  15

### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.10  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  25.0

### LOW IDLE

Rated speed rpm : 420  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.04.96  
Test oil : ISO 4113

Combination No. : 0 402 746 611

Injection pump  
Pump designation : PES6P120A320RS7372  
EP type number : 0 412 726 940

Governor  
Governor design. : RQV250...1400PA1279K  
Governor no. : 0 421 815 508

Cust. part No. : 3866783

## Customer-spec. information

Customer : CDC  
Motor : 6BTA  
Power KW : 235.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

°NW after s.o.d. : 11.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 13.85  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 198.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 34.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.39  
Tolerance mm : ± 0.20

Rated speed rpm : 1455  
guide sleeve  
travel mm : 9.16  
Tolerance mm : ± 0.15

Rated speed rpm : 931  
guide sleeve  
travel mm : 5.67  
Tolerance mm : ± 0.25

Rated speed rpm : 480  
guide sleeve  
travel mm : 3.18  
Tolerance mm : ± 0.25

Rated speed rpm : 1860  
guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 198.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 118.5  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 12.80  
Rated speed rpm : 1450  
Tolerance 1/min : ± 5

rack travel mm : 6.00  
Rated speed rpm : 1585  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1700

##### LOW IDLE

control lever  
position degree : 74.5  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 275  
rack travel mm : 7.30  
Tolerance mm : ± 0.20

Rated speed rpm : 200  
CRT mm min. : > 8.80

Rated speed rpm : 350

---

#### TORQUE CONTROL

Rated speed rpm : 1400  
rack travel mm : 13.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000  
rack travel mm : 13.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
rack travel mm : 13.15  
Tolerance mm :  $\pm$  0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1400  
Pressure hPa : 1200

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1400  
rack travel mm : 10.30  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1400

Pressure hPa : 620  
rack travel mm : 12.70  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 280  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.20

---

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  200

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  210

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200

Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 188.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### BREAKAWAY

Rack travel in mm : 12.80  
Rated speed rpm : 1450  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.00  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 175.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 34.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.08.95  
Test oil : ISO 4113  
Combination No. : 0 402 746 648  
Injection pump  
Pump designation : PES6P120A320RS7363  
EP type number : 0 412 726 931  
Governor  
Governor design. : RQV325...1000PA1203  
: -1K  
Governor no. : 0 421 815 46  
Cust. part No. : 313GC5216-P2

Customer-spec. information  
Customer : MACK  
Motor : EM5260  
Power KW : 195.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2 417 413 084  
Inlet press. bar : 3.0  
Tolerance bar : ± 0.1  
Test nozzle holder  
assembly : 1 688 901 103  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 008

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Start of delivery blocking  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000  
Rack travel in mm : 12.80  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 254.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed

Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 9.0

Del. quantity  
cm3/1000 strokes : 43.5

Tolerance  
cm3/1000 strokes :  $\pm$  3.0

Check tolerance  
cm3/1000S. :  $\pm$  5.0

Spread  
Tolerance  
cm3/1000 strokes : 8.0

Check tolerance  
cm3/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 325  
guide sleeve  
travel mm : 1.53  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1056  
guide sleeve  
travel mm : 9.06  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 898  
guide sleeve  
travel mm : 7.74  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 371  
guide sleeve  
travel mm : 2.23  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 421  
guide sleeve  
travel mm : 2.85  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 610  
guide sleeve  
travel mm : 4.40  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1440  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.25

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure

hPa : 1200

Del. quantity  
cm3/1000 strokes : 254.5

Tolerance  
cm3/1000 strokes :  $\pm$  1.0

Check tolerance  
cm3/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 115.0  
tolerance degree :  $\pm$  6.0

##### RATED SPEED

rack travel mm : 11.80  
Rated speed rpm : 1050  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1200  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1275

##### LOW IDLE

control lever  
position degree : 63.5  
tolerance degree :  $\pm$  6.0

##### Testing:

Rated speed rpm : 325  
rack travel mm : 4.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 275

CRT mm min. :  $>$  5.50



Rated speed rpm : 425

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 575  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 800  
rack travel mm : 13.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 450  
rack travel mm : 11.90  
Tolerance mm :  $\pm$  0.40

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 800  
Pressure hPa : 1200

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 800  
rack travel mm : 8.50  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 800

Pressure hPa : 755  
rack travel mm : 12.40  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 405  
rack travel mm : 9.80  
Tolerance mm :  $\pm$  0.05

---

##### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 250

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 255

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 575  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 296.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 154.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 11.80  
Rated speed rpm : 1050  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 194.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  30.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 43.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.04.96  
Test oil : ISO 4113  
Combination No. : 0 402 616 806  
Injection pump  
Pump designation : PE6P120A300LS7888  
EP type number : 0 412 626 947  
Governor  
Governor design. :  
Governor no. :

Cust. part No. : 04221425KZ0165-17

Customer-spec. information  
Customer : KHD  
Motor : BF6M1015C  
Power KW : 300.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

M01

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 1- 6- 3- 5- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 13.70  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 350.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 4.70  
Tolerance mm : ± 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 350.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

TORQUE CONTROL

Rated speed rpm : 950  
rack travel mm : 13.70  
Tolerance mm : ± 0.05

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.00

Del. quantity  
cm<sup>3</sup>/1000 strokes : 200.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 24.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 4.70

Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.04.96  
Test oil : ISO 4113

Combination No. : 0 402 646 744

Injection pump  
Pump designation : PE6P120A320LS7872  
EP type number : 0 412 626 912

Governor  
Governor design. : RQV300...1050PA1259  
Governor no. : 0 421 814 169

Cust. part No. : 04221532 KY 0165-17

---

Customer-spec. information  
Customer : KHD  
Motor : BF6M1015C  
Power KW : 270.0

---

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 195  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

---

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 6- 3- 5- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

---

## BASIC SETTING

Rated speed rpm : 1050

---

Rack travel in mm : 13.20  
Tolerance mm : ± 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 328.0

---

Tolerance  
cm3/1000 strokes : + 1.0

Check tolerance  
cm3/1000S. : + 4.0

Spreed  
Tolerance  
cm3/1000 strokes : 6.0

Check tolerance  
cm3/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 4.60  
Tolerance mm : + 0.20

Del. quantity  
cm3/1000 strokes : 23.0

Tolerance  
cm3/1000 strokes : + 3.0

Check tolerance  
cm3/1000S. : + 6.0

Spreed  
Tolerance  
cm3/1000 strokes : 8.0

Check tolerance  
cm3/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.24  
Tolerance mm : + 0.20

Rated speed rpm : 1098  
guide sleeve  
travel mm : 10.02  
Tolerance mm : + 0.15

Rated speed rpm : 860  
guide sleeve  
travel mm : 5.59  
Tolerance mm : + 0.25

Rated speed rpm : 560  
guide sleeve  
travel mm : 3.24  
Tolerance mm : + 0.25

Rated speed rpm : 1154  
guide sleeve  
travel mm : 12.00  
Tolerance mm : + 0.25

Rated speed rpm : 1230  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1130

Rack travel in mm : 12.70  
Tolerance mm : + 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1700

Del. quantity  
cm3/1000 strokes : 328.0

Tolerance  
cm3/1000 strokes : + 1.0

Check tolerance  
cm3/1000S. : + 4.0

Spreed  
Tolerance  
cm3/1000 strokes : 6.0

Check tolerance  
cm3/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 122.0  
tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 12.20  
Rated speed rpm : 1085  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1125  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1280

##### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 4.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 200  
CRT mm min. :  $>$  6.10  
Rated speed rpm : 345

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 400  
Pressure hPa : 1700  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 8.30  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 400

Pressure hPa : 450  
rack travel mm : 9.20  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 1000  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -

M05

Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 12.20  
Rated speed rpm : 1085  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 8.30  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 4.60  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

End of test specification sheet





# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.04.96  
Test oil : ISO 4113  
  
Combination No. : 0 402 646 746  
  
Injection pump  
Pump designation : PE6P120A320LS7872  
EP type number : 0 412 626 912  
  
Governor  
Governor design. : RQV300...950PA1238  
Governor no. : 0 421 814 156  
  
Cust. part No. : 04222809KY0165-17

Customer-spec. information  
Customer : KHD  
Motor : BF6M1015C  
Power KW : 300.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 417 413 025  
  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
  
Test nozzle holde  
assembly : 1 688 901 105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 075  
  
Outside diameter : 8.0

M07

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 4.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 0.50  
  
Firing order : 1- 6- 3- 5- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50  
  
Start of delivery mark  
  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 900  
  
Rack travel in mm : 14.20  
Tolerance mm : ± 0.05  
  
Del. quantity  
cm3/1000 strokes : 358.0  
  
Tolerance  
cm3/1000 strokes : ± 1.0  
  
Check tolerance  
cm3/1000S. : ± 4.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.00  
Tolerance mm : +- 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.13  
Tolerance mm : +- 0.20

Rated speed rpm : 994  
guide sleeve  
travel mm : 10.08  
Tolerance mm : +- 0.15

Rated speed rpm : 700  
guide sleeve  
travel mm : 5.10  
Tolerance mm : +- 0.25

Rated speed rpm : 1160  
guide sleeve  
travel mm : 13.50  
Tolerance mm : +- 0.50

---

GUIDE SLEEVE POSITION

Rated speed rpm : 1035

Rack travel in mm : 13.20  
Tolerance mm : +- 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
Aneroid pressure  
hPa : 1700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 358.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 123.0  
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 13.20  
Rated speed rpm : 980  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1055  
Tolerance 1/min : +- 15

rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1200

---

LOW IDLE

control lever  
position degree : 77.0  
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 5.00  
Tolerance mm : +- 0.10

Rated speed rpm : 200

CRT mm min. : > 6.70

Rated speed rpm : 370

---

#### TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 14.20  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 400  
Pressure hPa : 1700  
rack travel mm : 14.20  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 8.90  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 400

Pressure hPa : 385  
rack travel mm : 9.70  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 1000  
rack travel mm : 13.00  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 13.20  
Rated speed rpm : 980  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 8.90  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 5.00  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.04.96

Test oil : ISO 4113

Combination No. : 0 402 646 909

Injection pump  
Pump designation : PE6P120A32ORS7138

: -10Z

EP type number : 0 412 626 923

## Governor

Governer design. : RQV200...1100PA712

: -5

Governer no. : 0 421 813 951

Cust. part No. : 1318819

## Customer-spec. information

Customer : SCANIA

Motor : DSC907

## TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Vibration  
damper

(RoBo diaphragm) : 4.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

Test nozzle holde  
assembly

: 1 688 901 104

Opening pressure

bar : 251.5

Tolerance bar : ± 1.5

M10

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

### (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

### BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.45

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.30

Check

tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

### BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.15

Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 159.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 250

Rack travel in mm : 5.00  
Tolerance mm :  $\pm$  0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1130

Rack travel in mm : 16.50  
Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 159.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### CONTROL LEVER

control lever  
position degree : 60.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 120.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 11.15  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1285  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1400

##### LOW IDLE

control lever  
position degree : 64.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 9.0  
tolerance degree :  $\pm$  4.0

##### Testing:

Rated speed rpm : 250  
rack travel mm : 5.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 150

CRT mm min. :  $>$  6.50

Rated speed rpm : 250

##### TORQUE CONTROL

Rated speed rpm : 700

rack travel mm : 12.15  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1100  
rack travel mm : 12.15  
Tolerance mm :  $\pm$  0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 12.15  
Tolerance mm :  $\pm$  0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.30  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 220  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 350  
rack travel mm : 11.55  
Tolerance mm :  $\pm$  0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 116.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

BREAKAWAY

Rack travel in mm : 11.15  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.30  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

LOW IDLE

Rated speed rpm : 250  
rack travel mm : 5.00  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.04.96  
Test oil : ISO 4113

Combination No. : 0 402 648 789

Injection pump  
Pump designation : PE8P120A320LS7873  
EP type number : 0 412 628 880

Governor  
Governor design. : RQV300...1050PA1259  
Governor no. : 0 421 814 169

Cust. part No. : 04222488KY0165-17

## Customer-spec. information

Customer : KHD  
Motor : BF8M1015/C  
Power KW : 400.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 8- 7- 2- 6  
: - 5- 4- 3

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.00  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 340.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.00  
Tolerance mm : + 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.24  
Tolerance mm : + 0.20

Rated speed rpm : 1103  
guide sleeve  
travel mm : 10.19  
Tolerance mm : + 0.15

Rated speed rpm : 860  
guide sleeve  
travel mm : 5.59  
Tolerance mm : + 0.25

Rated speed rpm : 560  
guide sleeve  
travel mm : 3.24  
Tolerance mm : + 0.25

Rated speed rpm : 1154  
guide sleeve  
travel mm : 12.00  
Tolerance mm : + 0.25

Rated speed rpm : 1230  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1118

Rack travel in mm : 13.00  
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1700

Del. quantity  
cm<sup>3</sup>/1000 strokes : 340.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 122.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.00  
Rated speed rpm : 1090  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1135  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1290

LOW IDLE



control lever  
position degree : 78.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 200  
CRT mm max. :  $>$  7.00  
Rated speed rpm : 345

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 14.00  
Tolerance mm :  $\pm$  0.05

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 400  
Pressure hPa : 1600  
rack travel mm : 14.00  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 9.40  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 400  
Pressure hPa : 570  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 1100  
rack travel mm : 13.00  
Tolerance mm :  $\pm$  0.05

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -

M15

Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 250.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### BREAKAWAY

Rack travel in mm : 13.00  
Rated speed rpm : 1090  
Tolerance 1/min :  $\pm$  5

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.00  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 221.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 09.04.96

Test oil : ISO 4113

Combination No. : 0 402 648 793

Injection pump  
Pump designation : PE8P120A320LS7873  
EP type number : 0 412 628 880

Governor  
Governor design. : RQ300/1050PA1268  
Governor no. : 0 421 801 802

Cust. part No. : 04223118KY0165-17

## Customer-spec. information

Customer : KHD  
Motor : BF8M1015/C  
Power KW : 400.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 160  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 8- 7- 2- 6  
                  : - 5- 4- 3

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.60  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 340.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.00  
Tolerance mm : ± 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.66  
Tolerance mm : ± 0.20

Rated speed rpm : 1106  
guide sleeve  
travel mm : 6.53  
Tolerance mm : ± 0.15

Rated speed rpm : 1050  
guide sleeve  
travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 458  
guide sleeve  
travel mm : 4.21  
Tolerance mm : ± 0.10

Rated speed rpm : 580

guide sleeve  
travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 1290  
guide sleeve  
travel mm : 11.50  
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 700

Rack travel in mm : 11.20  
Tolerance mm : ± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1600

Del. quantity  
cm<sup>3</sup>/1000 strokes : 340.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

CONTROL LEVER

control lever  
position degree : 99.0  
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 13.60  
Rated speed rpm : 1100  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1210  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1300

LOW IDLE

control lever  
position degree : 72.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 5.00  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 415  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 200  
CRT mm min. :  $>$  6.20

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 14.60  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 400  
Pressure hPa : 1600  
rack travel mm : 14.60  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 9.40  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 400

Pressure hPa : 570  
rack travel mm : 11.10  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 1100  
rack travel mm : 13.60  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm :  $>$  100

M18

Rated speed rpm :  $<$  220

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 250.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 13.60  
Rated speed rpm : 1100  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.40  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 5.00  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.04.96  
Test oil : ISO 4113  
Combination No. : 0 402 648 795  
Injection pump  
Pump designation : PE8P120A320LS7873  
EP type number : 0 412 628 880  
Governor  
Governor design. : RQV300...1050PA1258K  
Governor no. : 0 421 815 490

Cust. part No. : 04223330KY0165-17

Customer-spec. information  
Customer : KHD  
Motor : BF8M1015/c  
Power KW : 400.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 115  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 8- 7- 2- 6  
                  : - 5- 4- 3

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.70  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 360.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 4.80  
Tolerance mm : ± 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.60  
Tolerance mm : ± 0.20

Rated speed rpm : 1097  
guide sleeve  
travel mm : 10.07  
Tolerance mm : ± 0.15

Rated speed rpm : 796  
guide sleeve  
travel mm : 6.87  
Tolerance mm : ± 0.25

Rated speed rpm : 510  
guide sleeve  
travel mm : 4.02  
Tolerance mm : ± 0.25

Rated speed rpm : 1340

guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1175

Rack travel in mm : 13.70  
Tolerance mm : ± 1.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 360.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 119.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 13.70  
Rated speed rpm : 1085  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1200  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1350

##### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree : ± 4.0

### Testing:

Rated speed rpm : 300  
rack travel mm : 4.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 200  
CRT mm max. :  $>$  6.30

Rated speed rpm : 350

---

### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 14.70  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 14.00  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 600  
rack travel mm : 12.70  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 450  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.25

---

### ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 1050  
Pressure hPa : 1000  
rack travel mm : 14.70  
Tolerance mm :  $\pm$  0.05

### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1050  
rack travel mm : 8.90  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1050

Pressure hPa : 500  
rack travel mm : 11.95  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 800  
rack travel mm : 14.10  
Tolerance mm :  $\pm$  0.05

---

### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 250.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

---

### BREAKAWAY

Rack travel in mm : 13.70  
Rated speed rpm : 1085  
Tolerance 1/min :  $\pm$  5

---

### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 8.90  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  24.0

---

### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 4.80  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0



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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.04.96  
Test oil : ISO 4113  
Combination No. : 0 402 648 797  
Injection pump  
Pump designation : PE8P120A320LS7873  
EP type number : 0 412 628 880  
Governor  
Governor design. : RQ750PA1231  
Governor no. : 0 421 801 791  
Cust. part No. : 04222112KY0165-17

Customer-spec. information  
Customer : KHD  
Motor : BF8M1015/C  
Power KW : 318.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 025  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
Test nozzle holder  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 075  
Outside diameter : 8.0

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x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 8- 7- 2- 6  
                  : - 5- 4- 3  
Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50  
Start of delivery mark  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700  
Rack travel in mm : 13.30  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 365.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spreed	
Tolerance	
cm3/1000 strokes :	5.0

Check tolerance	
cm3/1000S. :	9.0

Rated speed rpm :	300
-------------------	-----

Rack travel in mm :	4.70
Tolerance mm :	+ 0.20

Del. quantity	
cm3/1000 strokes :	20.0

Tolerance	
cm3/1000 strokes :	+ 3.0

Check tolerance	
cm3/1000S. :	+ 6.0

Spreed	
Tolerance	
cm3/1000 strokes :	8.0

Check tolerance	
cm3/1000S. :	12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm :	768
guide sleeve	
travel mm :	6.28
Tolerance mm :	+ 0.15

Rated speed rpm :	610
guide sleeve	
travel mm :	0.52
Tolerance mm :	+ 0.25

Rated speed rpm :	900
guide sleeve	
travel mm :	14.60
Tolerance mm :	+ 0.15

Rated speed rpm :	866
guide sleeve	
travel mm :	12.00
Tolerance mm :	+ 0.25

Rated speed rpm :	930
guide sleeve	
travel mm :	13.50
Tolerance mm :	+ 0.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	700
-------------------	-----

Aneroid pressure	
hPa :	-

Del. quantity	
cm3/1000 strokes :	365.0

Tolerance	
cm3/1000 strokes :	+ 1.0

Check tolerance	
cm3/1000S. :	+ 4.0

Spreed	
Tolerance	
cm3/1000 strokes :	5.0

Check tolerance	
cm3/1000S. :	9.0

##### CONTROL LEVER

control lever	
position degree :	109.0
tolerance degree :	+ 4.0

##### RATED SPEED

rack travel mm :	0.50
Tolerance mm :	+ 0.50
Rated speed rpm :	900

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm :	750
rack travel mm :	12.30

Rated speed rpm :	780
Tolerance 1/min :	+ 4
rack travel mm :	5.50

rack travel mm :	0.50
Tolerance mm :	+ 0.50
Rated speed rpm :	900

Rated speed rpm :	751
rack travel mm :	12.30

Rated speed rpm :	781
Tolerance 1/min :	+ 4
rack travel mm :	5.50

rack travel mm :	0.50
Tolerance mm :	+ 0.50

Rated speed rpm :	752
rack travel mm :	12.30

Rated speed rpm :	782
Tolerance 1/min :	+ 4
rack travel mm :	5.50

rack travel mm :	0.50
Tolerance mm :	+ 0.50

Rated speed rpm : 900  
 Rated speed rpm : 753  
 rack travel mm : 12.30  
 Rated speed rpm : 783  
 Tolerance 1/min :  $\pm 4$   
 rack travel mm : 5.50  
 rack travel mm : 0.50  
 Tolerance mm :  $\pm 0.50$   
 Rated speed rpm : 754  
 rack travel mm : 12.30  
 Rated speed rpm : 784  
 Tolerance 1/min :  $\pm 4$   
 rack travel mm : 5.50  
 rack travel mm : 0.50  
 Tolerance mm :  $\pm 0.50$   
 Rated speed rpm : 900  
 Rated speed rpm : 755  
 rack travel mm : 12.30  
 Rated speed rpm : 785  
 Tolerance 1/min :  $\pm 4$   
 rack travel mm : 5.50  
 rack travel mm : 0.50  
 Tolerance mm :  $\pm 0.50$

---

#### TORQUE CONTROL

Rated speed rpm : 700  
 rack travel mm : 13.30  
 Tolerance mm :  $\pm 0.05$

---

#### START CUT-OUT

Rated speed rpm : > 100  
 Rated speed rpm : < 560  
 Check  
 speed 1/min : > 80  
 Check  
 speed 1/min : < 580

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 20.25  
 Tolerance mm :  $\pm 0.75$   
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 205.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm 20.0$   
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm 24.0$

---

#### LOW IDLE

Rated speed rpm : 300  
 rack travel mm : 4.70  
 Tolerance mm :  $\pm 0.20$   
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 20.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm 3.0$   
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm 6.0$   
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.04.96  
Test oil : ISO 4113

Combination No. : 0 402 736 885

Injection pump  
Pump designation : PES6P120A120RS7370  
EP type number : 0 412 726 934

Governor  
Governor design. : RQV400...1250PA1212K  
Governor no. : 0 421 815 462

Cust. part No. : 3931599

Customer-spec. information  
Customer : CDC  
Motor : 6BTA-A  
Power KW : 131.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

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x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.85  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### RATED SPEED

rack travel mm : 12.80

Rated speed rpm : 1330

Tolerance 1/min : ± 15

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1700

##### LOW IDLE

##### Testing:

Rated speed rpm : 420

rack travel mm : 6.20

Tolerance mm : ± 0.20

Rated speed rpm : 425

##### TORQUE CONTROL

Rated speed rpm : 1250

rack travel mm : 13.85

Tolerance mm : ± 0.05

Rated speed rpm : 800

rack travel mm : 11.80

Tolerance mm : ± 0.10

Rated speed rpm : 1000

rack travel mm : 12.50

Tolerance mm : ± 0.20

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1250

Pressure hPa : 1200

##### MEASUREMENT

Pressure hPa : -

Rated speed rpm : 1250

rack travel mm : 9.40

Tolerance mm : ± 0.20

Rated speed rpm : 1250

Pressure hPa : 440

rack travel mm : 12.55

Tolerance mm : ± 0.30

Pressure hPa : 265

rack travel mm : 10.80

Tolerance mm : ± 0.20

##### START CUT-OUT

Rated speed rpm : > 100

Rated speed rpm : < 315

Check  
speed 1/min : > 80

Check  
speed 1/min : < 325

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 123.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1250  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 96.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 12.80  
Rated speed rpm : 1330  
Tolerance 1/min :  $\pm$  15

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 11.70  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 157.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.04.96  
Test oil : ISO 4113

Combination No. : 9 400 085 382

Injection pump  
Pump designation : PES6A100D120RS2869  
EP type number : 9 400 084 038

Governor  
Governor design. : RQV350...1100AB1303R  
Governor no. : 9 420 080 381

Cust. part No. : 3356052

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 CTAA 215 hp  
Power KW : 159.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery difference

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 4.00

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.75  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0



Spreed	
Tolerance	
cm3/1000 strokes :	3.5
Check tolerance	
cm3/1000S. :	8.0
Del. quantity	
cm3/1000 strokes :	17.5
Tolerance	
cm3/1000 strokes :	+ 2.0
Check tolerance	
cm3/1000S. :	+ 4.5
Spreed	
Tolerance	
cm3/1000 strokes :	5.5
Check tolerance	
cm3/1000S. :	9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm :	1050
guide sleeve	
travel mm :	5.90
Tolerance mm :	+ 0.10
Rated speed rpm :	
guide sleeve	850
travel mm :	4.75
Tolerance mm :	+ 0.25
Rated speed rpm :	
guide sleeve	350
travel mm :	1.45
Tolerance mm :	+ 0.25
Rated speed rpm :	
guide sleeve	600
travel mm :	3.65
Tolerance mm :	+ 0.25
Rated speed rpm :	
guide sleeve	1350
travel mm :	8.35
Tolerance mm :	+ 0.25

GUIDE SLEEVE POSITION

Rated speed rpm :	1360
Rack travel in mm :	16.50
Tolerance mm :	+ 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1100
Aneroid pressure	
hPa :	1100
Del. quantity	
cm3/1000 strokes :	145.5
Tolerance	
cm3/1000 strokes :	+ 1.0
Check tolerance	
cm3/1000S. :	+ 3.0
Spreed	
Tolerance	
cm3/1000 strokes :	3.5
Check tolerance	
cm3/1000S. :	8.0

CONTROL LEVER

control lever	
position degree :	55.0
tolerance degree :	+ 4.0

control lever	
position degree :	110.0
tolerance degree :	+ 4.0

RATED SPEED

rack travel mm :	11.70
Rated speed rpm :	1170
Tolerance 1/min :	+ 5
rack travel mm :	
Rated speed rpm :	4.00
Tolerance 1/min :	+ 15
rack travel mm :	
Tolerance mm :	0.50
Rated speed rpm :	+ 0.50
	1500

LOW IDLE

control lever	
position degree :	68.0
tolerance degree :	+ 4.0

control lever	
position degree :	13.0
tolerance degree :	+ 4.0

Testing:

Rated speed rpm : 350  
rack travel mm : 5.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100  
CRT mm min. :  $>$  8.00  
Rated speed rpm : 375

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 12.75  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1100  
rack travel mm : 12.75  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 690  
rack travel mm : 2.25  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 300  
rack travel mm : 0.70  
Tolerance mm :  $\pm$  0.10

---

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  270

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  290

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1100  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 148.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 82.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### BREAKAWAY

Rack travel in mm : 11.70  
Rated speed rpm : 1170  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 168.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.04.96  
Test oil : ISO 4113  
  
Combination No. : 9 400 085 386  
  
Injection pump  
Pump designation : PES6A95D410RS2812  
EP type number : 9 400 084 028  
  
Governor  
Governor design. : RQV350...1300AB1304L  
Governor no. : 9 420 080 382

Cust. part No. :

Customer-spec. information  
Customer : MWM  
Motor : 6.10 T  
Power KW : 124.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.80  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery differende

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 2.00

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 11.65  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 91.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

Spreed  
Tolerance  
cm3/1000 strokes : 3.5

---

Check tolerance  
cm3/1000S. : 8.0

Del. quantity  
cm3/1000 strokes : 12.5  
Tolerance  
cm3/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm3/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm3/1000 strokes : 5.5  
Check tolerance  
cm3/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1350  
guide sleeve  
travel mm : 7.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 800  
guide sleeve  
travel mm : 3.95  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.05  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 550  
guide sleeve  
travel mm : 2.75  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1500  
guide sleeve  
travel mm : 8.55  
Tolerance mm :  $\pm$  0.25

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1485  
Rack travel in mm : 16.50  
Tolerance mm :  $\pm$  1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm3/1000 strokes : 91.0  
Tolerance  
cm3/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm3/1000S. :  $\pm$  3.0  
Spreed  
Tolerance  
cm3/1000 strokes : 3.5  
Check tolerance  
cm3/1000S. : 8.0

---

##### CONTROL LEVER

control lever  
position degree : 58.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 113.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 10.60  
Rated speed rpm : 1418  
Tolerance 1/min :  $\pm$  8

rack travel mm : 4.00  
Rated speed rpm : 1550  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1700

---

##### LOW IDLE

control lever  
position degree : 69.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 13.0  
tolerance degree :  $\pm$  4.0

Testing:

Rated speed rpm : 350  
rack travel mm : 5.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100  
CRT mm min. :  $>$  8.00

Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 11.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 12.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 880  
rack travel mm : 12.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1260  
rack travel mm : 11.65  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 12.05  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 470  
rack travel mm : 1.75  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 270  
rack travel mm : 0.60  
Tolerance mm :  $\pm$  0.10

---

##### START CUT-OUT

Rated speed rpm :  $>$  100

N08

Rated speed rpm :  $<$  270

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  290

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 93.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 51.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### BREAKAWAY

Rack travel in mm : 10.60  
Rated speed rpm : 1418  
Tolerance 1/min :  $\pm$  8

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 387  
Injection pump  
Pump designation : PES6A100D320/3RS2691  
: -2  
EP type number : 9 410 230 028  
Governor  
Governor design. : RQV450...1150AB1305R  
Governor no. : 9 420 080 383

Cust. part No. : 3355883

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 CT - 8.3 L  
Power KW : 126.8

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

N10

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery differende

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 3.50

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 10.45  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 92.0

Tolerance  
cm3/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : ± 3.0



Speed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 3.5
Check tolerance	
cm <sup>3</sup> /1000S.	: 8.0
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 11.5
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 2.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.5
Speed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.5
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1150
guide sleeve	
travel mm	: 7.50
Tolerance mm	: ± 0.10

Rated speed rpm	: 900
guide sleeve	
travel mm	: 5.65
Tolerance mm	: ± 0.25

Rated speed rpm	: 400
guide sleeve	
travel mm	: 1.85
Tolerance mm	: ± 0.25

Rated speed rpm	: 650
guide sleeve	
travel mm	: 4.35
Tolerance mm	: ± 0.25

Rated speed rpm	: 1300
guide sleeve	
travel mm	: 8.95
Tolerance mm	: ± 0.25

GUIDE SLEEVE POSITION

Rated speed rpm	: 1245
-----------------	--------

Rack travel in mm	: 16.50
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1150
Aneroid pressure	
hPa	: -
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 92.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 3.0
Speed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 3.5
Check tolerance	
cm <sup>3</sup> /1000S.	: 8.0

CONTROL LEVER

control lever	
position degree	: 58.0
tolerance degree	: ± 4.0

control lever	
position degree	: 113.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 9.40
Rated speed rpm	: 1195
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1300
Tolerance 1/min	: ± 15

rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1450

LOW IDLE

control lever	
position degree	: 72.0
tolerance degree	: ± 4.0

control lever	
position degree	: 16.0
tolerance degree	: ± 4.0

Testing:

Rated speed rpm : 450  
rack travel mm : 4.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100  
CRT mm min. :  $>$  11.00  
Rated speed rpm : 500

---

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 10.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 850  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1050  
rack travel mm : 10.45  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  300

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  320

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 91.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 9.40  
Rated speed rpm : 1195

Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 164.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 387EF  
Injection pump  
Pump designation : PES6A100D320/3RS2691  
: -2  
EP type number : 9 410 230 028  
Governor  
Governor design. : RQV450...1150AB1305R  
Governor no. : 9 420 080 383  
Cust. part No. : 3355882

## Customer-spec. information

Customer : CUMMINS  
Motor : 6 CT - 8.3 L  
Power KW : 111.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery differende

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 3.50

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 10.85  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 99.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 3.5
Check tolerance	
cm <sup>3</sup> /1000S.	: 8.0
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 11.5
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 2.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.5
Spread	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.5
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1150
guide sleeve	
travel mm	: 7.50
Tolerance mm	: ± 0.10

Rated speed rpm	: 900
guide sleeve	
travel mm	: 5.65
Tolerance mm	: ± 0.25

Rated speed rpm	: 400
guide sleeve	
travel mm	: 1.85
Tolerance mm	: ± 0.25

Rated speed rpm	: 650
guide sleeve	
travel mm	: 4.35
Tolerance mm	: ± 0.25

Rated speed rpm	: 1300
guide sleeve	
travel mm	: 8.95
Tolerance mm	: ± 0.25

##### GUIDE SLEEVE POSITION

Rated speed rpm	: 1245
Rack travel in mm	: 16.50
Tolerance mm	: ± 1.30

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1150
Aneroid pressure	
hPa	: -
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 99.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 3.0
Spread	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 3.5
Check tolerance	
cm <sup>3</sup> /1000S.	: 8.0

#### CONTROL LEVER

control lever	
position degree	: 58.0
tolerance degree	: ± 4.0

control lever	
position degree	: 113.0
tolerance degree	: ± 4.0

#### RATED SPEED

rack travel mm	: 9.80
Rated speed rpm	: 1195
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1310
Tolerance 1/min	: ± 15

rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1450

#### LOW IDLE

control lever	
position degree	: 72.0
tolerance degree	: ± 4.0

control lever	
position degree	: 17.0
tolerance degree	: ± 4.0

Testing:

Rated speed rpm : 450  
rack travel mm : 4.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100  
CRT mm min. :  $>$  11.00

Rated speed rpm : 500

---

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 10.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 10.85  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  370

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  390

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 89.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  3.8

---

#### BREAKAWAY

Rack travel in mm : 9.80  
Rated speed rpm : 1195  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00

N15

Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 164.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  11.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 387EG  
Injection pump  
Pump designation : PES6A100D320/3RS2691  
: -2  
EP type number : 9 410 230 028  
Governor  
Governor design. : RQV450...1150AB1305R  
Governor no. : 9 420 080 383

Cust. part No. : 3355884

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 CT - 8.3 L  
Power kW : 144.3

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery differende

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 3.50

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 11.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 107.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spreed	
Tolerance	
cm3/1000 strokes	: 3.5
Check tolerance	
cm3/1000S.	: 8.0
Del. quantity	
cm3/1000 strokes	: 11.5
Tolerance	
cm3/1000 strokes	: +- 2.0
Check tolerance	
cm3/1000S.	: +- 4.5
Spreed	
Tolerance	
cm3/1000 strokes	: 5.5
Check tolerance	
cm3/1000S.	: 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1150
guide sleeve	
travel mm	: 7.50
Tolerance mm	: +- 0.10

Rated speed rpm	: 900
guide sleeve	
travel mm	: 5.65
Tolerance mm	: +- 0.25

Rated speed rpm	: 400
guide sleeve	
travel mm	: 1.85
Tolerance mm	: +- 0.25

Rated speed rpm	: 650
guide sleeve	
travel mm	: 4.35
Tolerance mm	: +- 0.25

Rated speed rpm	: 1300
guide sleeve	
travel mm	: 8.95
Tolerance mm	: +- 0.25

##### GUIDE SLEEVE POSITION

Rated speed rpm	: 1245
Rack travel in mm	: 16.50
Tolerance mm	: +- 1.30

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1150
Aneroid pressure	
hPa	: -
Del. quantity	
cm3/1000 strokes	: 107.0
Tolerance	
cm3/1000 strokes	: +- 1.0
Check tolerance	
cm3/1000S.	: +- 3.0
Spreed	
Tolerance	
cm3/1000 strokes	: 3.5
Check tolerance	
cm3/1000S.	: 8.0

#### CONTROL LEVER

control lever	
position degree	: 58.0
tolerance degree	: +- 4.0

control lever	
position degree	: 113.0
tolerance degree	: +- 4.0

#### RATED SPEED

rack travel mm	: 10.30
Rated speed rpm	: 1195
Tolerance 1/min	: +- 5

rack travel mm	: 4.00
Rated speed rpm	: 1315
Tolerance 1/min	: +- 15

rack travel mm	: 0.50
Tolerance mm	: +- 0.50
Rated speed rpm	: 1450

#### LOW IDLE

control lever	
position degree	: 72.0
tolerance degree	: +- 4.0

control lever	
position degree	: 17.0
tolerance degree	: +- 4.0

Testing:

Rated speed rpm : 450  
rack travel mm : 4.90  
Tolerance mm : +- 0.10

Rated speed rpm : 100  
CRT mm min. : > 11.00  
Rated speed rpm : 500

---

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 11.35  
Tolerance mm : +- 0.05

Rated speed rpm : 700  
rack travel mm : 12.05  
Tolerance mm : +- 0.05

Rated speed rpm : 850  
rack travel mm : 11.85  
Tolerance mm : +- 0.05

Rated speed rpm : 950  
rack travel mm : 11.55  
Tolerance mm : +- 0.05

---

#### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 370

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 390

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm3/1000 strokes : 115.0  
Tolerance  
cm3/1000 strokes : +- 2.0  
Check tolerance  
cm3/1000S. : +- 4.0

---

#### BREAKAWAY

Rack travel in mm : 10.30  
Rated speed rpm : 1195

Tolerance 1/min : +- 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm : +- 1.00  
Del. quantity  
cm3/1000 strokes : 164.0  
Tolerance  
cm3/1000 strokes : +- 8.0  
Check tolerance  
cm3/1000S. : +- 11.0

---

#### LOW IDLE

Del. quantity  
cm3/1000 strokes : 11.5  
Tolerance  
cm3/1000 strokes : +- 2.0  
Check tolerance  
cm3/1000S. : +- 4.5  
Spreed  
Tolerance  
cm3/1000 strokes : 5.5  
Check tolerance  
cm3/1000S. : 9.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.04.96  
Test oil : ISO 4113  
  
Combination No. : 9 400 085 389  
  
Injection pump  
Pump designation : PES6A95D410RS2812  
EP type number : 9 400 084 028  
  
Governor  
Governor design. : RQV350...1300AB1309L  
Governor no. : 9 420 080 386

Cust. part No. :

Customer-spec. information  
Customer : MWM  
Motor : 6.10 TCA  
Power KW : 138.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Beginning of delivery difference

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 2.00

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 11.95  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 99.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

Spreed  
Tolerance  
cm3/1000 strokes : 3.5

---

Check tolerance  
cm3/1000S. : 8.0

Del. quantity  
cm3/1000 strokes : 13.0

Tolerance  
cm3/1000 strokes :  $\pm$  2.0

Check tolerance  
cm3/1000S. :  $\pm$  4.5

Spreed  
Tolerance  
cm3/1000 strokes : 5.5

Check tolerance  
cm3/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1350  
guide sleeve  
travel mm : 7.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 800  
guide sleeve  
travel mm : 3.95  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.05  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 550  
guide sleeve  
travel mm : 2.75  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1500  
guide sleeve  
travel mm : 8.55  
Tolerance mm :  $\pm$  0.25

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1490

Rack travel in mm : 16.50  
Tolerance mm :  $\pm$  1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
Aneroid pressure

hPa : 900

Del. quantity  
cm3/1000 strokes : 99.0

Tolerance  
cm3/1000 strokes :  $\pm$  1.0

Check tolerance  
cm3/1000S. :  $\pm$  3.0

Spreed  
Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 8.0

---

##### CONTROL LEVER

control lever  
position degree : 59.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 114.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 10.90  
Rated speed rpm : 1425  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1560  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1730

---

##### LOW IDLE

control lever  
position degree : 69.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 13.0  
tolerance degree :  $\pm$  4.0

Testing:

Rated speed rpm : 350  
rack travel mm : 5.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100  
CRT mm min. :  $>$  8.00  
Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 11.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 11.95  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 11.95  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 380  
rack travel mm : 1.80  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 190  
rack travel mm : 0.55  
Tolerance mm :  $\pm$  0.05

---

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  270

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  290

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 94.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 51.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### BREAKAWAY

Rack travel in mm : 10.90  
Rated speed rpm : 1425  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.04.96  
Test oil : ISO 4113  
Combination No. : 9 400 085 390  
Injection pump  
Pump designation : PES6A95D410RS2886  
EP type number : 9 400 084 039  
Governor  
Governor design. : RQV300...1300AB1310L  
Governor no. : 9 420 080 388

Cust. part No. : 0260746902

Customer-spec. information  
Customer : MBB  
Motor : OM 366LA/EURO I  
Power KW : 150.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 11.85  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 95.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.05  
Tolerance mm : +- 0.25

Rated speed rpm : 1500  
guide sleeve  
travel mm : 8.55  
Tolerance mm : +- 0.05

Rated speed rpm : 500  
guide sleeve  
travel mm : 2.55  
Tolerance mm : +- 0.25

Rated speed rpm : 750  
guide sleeve  
travel mm : 4.20  
Tolerance mm : +- 0.10

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1500

Rack travel in mm : 16.50  
Tolerance mm : +- 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 95.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

##### CONTROL LEVER

control lever  
position degree : 61.0  
tolerance degree : +- 4.0

control lever  
position degree : 109.0  
tolerance degree : +- 4.0

##### RATED SPEED

rack travel mm : 10.80  
Rated speed rpm : 1385  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1530  
Tolerance 1/min : +- 15

rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1650

##### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree : +- 4.0

control lever  
position degree : 22.0  
tolerance degree : +- 4.0

##### Testing:

Rated speed rpm : 300  
rack travel mm : 8.30  
Tolerance mm : +- 0.10

Rated speed rpm : 100  
CRT mm min. : > 9.70  
Rated speed rpm : 375

##### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1125  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500

Rated speed rpm : 500

Pressure hPa : 160  
rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 350  
rack travel mm : 1.45  
Tolerance mm :  $\pm$  0.05

---

##### START CUT-OUT

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 700

N25

Del. quantity  
cm<sup>3</sup>/1000 strokes : 88.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : 900  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 90.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 54.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

##### BREAKAWAY

Rack travel in mm : 10.80  
Rated speed rpm : 1385  
Tolerance 1/min :  $\pm$  5

---

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.90  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 93.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

##### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

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End of test specification sheet